

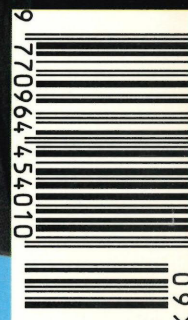
# PC REVIEW

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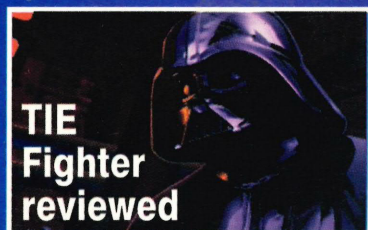
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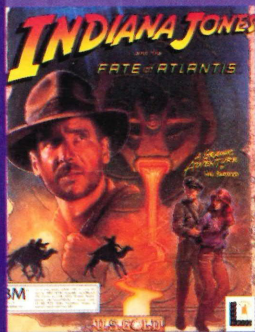
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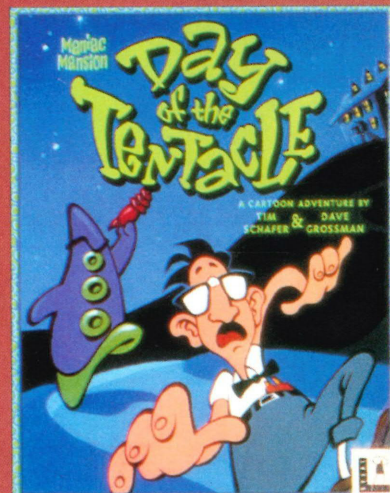


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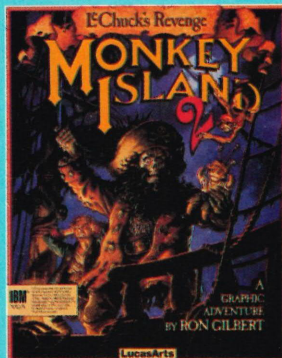
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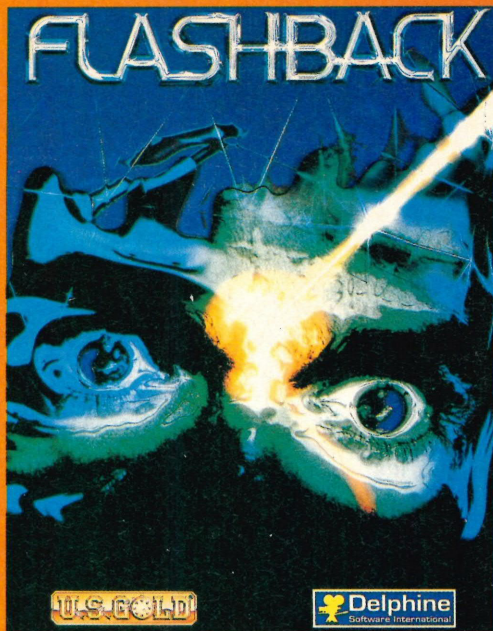
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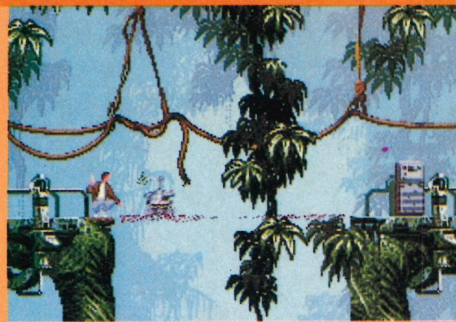
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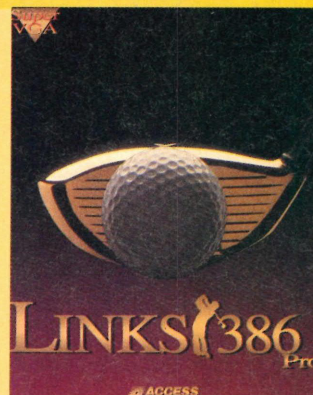
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# PC REVIEW

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### EDITORIAL

Editor Christina Erskine  
Deputy editor John Bennett  
Production editor Jackie Ryan  
Staff writer Cal Jones  
Contributors Deniz Ahmet, Paul  
Boughton, Steve Boxer, David Bradwell,  
Ciarán Brennan, Alan Clark, Steve Cooke,  
Gordon Houghton, Mike James, Martin  
Klimes, Simon Shaw

### DESIGN

Art editor Mark Edwards  
Deputy art editor Aileen O'Donnell  
Additional design Paul Anderson  
Photography Terence Beddis  
Cover model Cindy Ward at Freddie's  
Thanks to Jane and Jo for the clothes

### ADVERTISING

Group advertisement manager  
Nigel Taylor  
Advertisement manager  
Gerrard Richardson  
Advertising production Tina Gynn, Phil  
Kelly

### MANAGEMENT

Publishing director  
Mike Frey  
Publisher's assistant  
Jo Briar  
Marketing director  
Marcus Rich  
Marketing manager  
Karen Williams  
Marketing assistant  
Fiona Malloch  
Managing director Terry Pratt

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# PC REVIEW

SEE and HEAR the difference when you play these CD-ROM games!

EXCLUSIVE!

## Shadow of the Comet

Play the first day from the CD version. And SAVE money on the full game in our SPECIAL OFFER. See inside for details

## Castles II

This in-depth strategy game is a cinematic spectacular in this fully playable demo!

PLUS

More previews: Theme Park, Zool 2  
Playable extracts from the CD versions of these disk classics.

AND!

Star Trek The Next Generation  
Rolling preview of this long-awaited CD space adventure.

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# PC REVIEW

SEPTEMBER 1994

## MYSTIC TOWERS

The new 3D game from Apogee!

VR

aerial action

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# Cover CD

Welcome to the third PC Review cover CD. This month we have a veritable feast laid before you, representing the very best in CD-ROM entertainment. So, without more ado, let's introduce the first of our superb playable extracts from genuine CD-ROM games ...

## SHADOW OF THE COMET

### Infogrames

**S**hadow of the Comet is a dark and very difficult horror adventure in which you have three days to unravel the mysteries of Illsmouth, a village under demonic influence and apt to behave very strangely when there's a comet in the neighbourhood.

The new CD version — officially licensed by H P Lovecraft's estate — includes full speech, mouse control and a built-in Cthulhu museum.

### How to start

Shadow requires a small number of files to be installed to your hard disk. Log on to your CD-ROM drive, by typing D: [Enter] at the C:> prompt. Now type Install [Enter] to begin installing this set of files to your hard disk. To start the game log on to the Shadow directory (on your C: drive) and type SHADOW [Enter] to begin.

Similarly, type MUSEUM [Enter] to access the Museum feature.

### How to play

Your character is a young astronomer called John Parker. He's come to the sleepy, but definitely odd, village of Illsmouth to investigate (barking mad) Lord Boleskine's claims of demonic influence and strange cometary behaviour many years earlier. Your job is to find a way to photograph the comet's imminent visit.

It's an easy game to get in to. You guide your character around the

screen using the mouse, picking up objects, talking to people and looking at anything that catches your eye. Where there are exits at the bottom of a screen as well as both sides, you will see a white bar which will show you where to guide your character.

Move the mouse to the top of the screen and up pops the tool bar, with icons for Talk, Get, Use, Look, Inventory, Map and Options. There is a diary in the inventory, and using the diary and selecting combinations of objects from the inventory will help considerably. You can also use the map to skip quickly to other locations by clicking on them — provided you've already been there once.

As far as solving the adventure goes, we're not going to tell you. It's up to you to find out what's going on in Illsmouth, and it helps if you stay alive in the process. Good luck.

### How to quit

Go to the menu bar, select the disk icon and then select the EXIT option.

### Hardware required:

Minimum 386 PC, double speed CD-ROM drive, with 256 colour VGA, mouse, 2Mb of RAM (with 512 configured as EMS) and 560K free base memory. Sound Blaster compatible sound supported.

For more information on Shadow of the Comet, call Infogrames on (071) 738 8199.



## How to use your free CD-ROM

### HOW TO LOAD YOUR PC REVIEW COVER CD

1. Take the PC Review cover CD out of its plastic case.
2. Insert it into your CD-ROM drive and close the drive tray.
3. Wait for the light on the front of the CD-ROM drive to go out.
4. Type D:> [Enter]
5. With the D:> prompt showing on-screen, type **PCRCd [Enter]** to call up the PC Review cover CD menu
6. If you want to play any of the games on the CD, select CD Games from the on-screen menu, then make your selection using the cursor keys. (Note: for *Shadow of the Comet*, see panel, left.)
7. If you want to use Fractal Design Painter, select Graphics and Music from the on-screen menu.
8. Make sure you have around 10Mb free on your hard disk. Even those programs which run directly from the CD may create a directory on your hard disk to hold installation files.

## SPECIAL OFFER

### Save over £10 on the full CD-ROM version of Shadow of the Comet!

If you've enjoyed playing the extract from Shadow of the Comet on PC Review's cover CD, why not buy the full CD version of the game at a discounted price?

PC Review and Infogrames have joined together to give you an exclusive offer on Shadow of the Comet. Normally, the game will cost you £34.99 in the shops, but we're offering it to you at £25.99 (plus postage and packing)! All we need from you is the coupon below filled in and your money!

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- \* This offer closes on October 15th, 1994
- \* Please allow 28 days for delivery. Shadow of the Comet CD is due for release on September 1st
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## BENEATH A STEEL SKY



### Revolution/Virgin Interactive

**B**eneath a Steel Sky received rave reviews when it came out on floppy disk earlier this year, and has now been released on CD complete with speech and an extended intro sequence. Set in the future, you play fugitive Robert Foster, trapped in huge city and hunted by the security police. You have to get out, but not before you've uncovered the deadly secret which lurks in the bowels of the city.

Steel Sky is notable for its moody atmosphere, intuitive interface and ingenious puzzles. Perhaps its best feature, though, is the graphics, based on artwork supplied by renowned comic artist Dave Gibbons.

This demo is an extract from the full CD game, and you, as Robert, must escape from the recycling plant where he has been trapped by the security police.

#### How to start

This program runs straight from the CD cover menu.

#### How to quit

Press F5 and select Quit from the options menu.

#### Hardware required

386, 4Mb RAM, VGA and mouse.

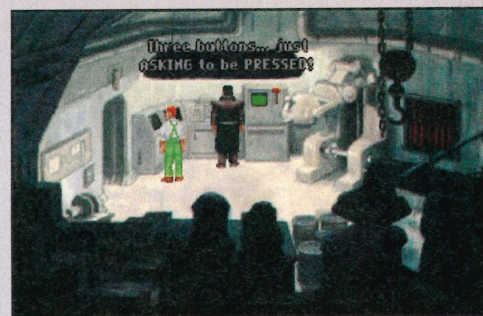
#### How to play

The control system is incredibly easy. Click on the part of the screen you

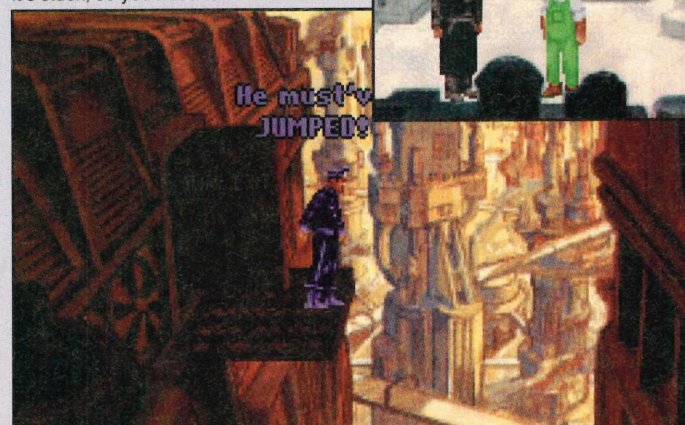
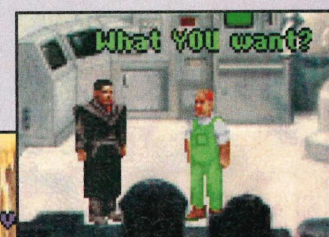
want Robert to walk to and he'll walk there. Click on an object and Robert will attempt to use it in the right manner (if, say, you click on a door, Robert will try to open it).

If you move the cursor to the top of the screen, a pull-down inventory will appear. At the beginning of the demo, all you have is your robot Joey's circuit board, but you'll pick up several useful objects as you progress. To use an object from your inventory, click on it using the right mouse button, then click with the left mouse button on whatever you wish to use the object on.

To get started, you'll have to open the door at the top of the fire escape. It's stuck, so you need to find some-



thing to prise it open with. Useful objects will highlight when the cursor is over them, and you should find a suitable item almost immediately.



## CASTLES II

### Interplay

**F**ancy your chances for the throne? Well, test your political and military skills in Interplay's cracking game of mediaeval strategy.

#### How to start

Castles 2 CD requires a small number of files to be installed to your hard disk. Select the game from the CD menu and the disc will install these files to C:\C2CD. Then to start the game you simply log on to this directory and type C2CD [Enter] to begin.

#### How to play

The idea of the game is to build up military resources, defend territory with a network of castles, and make the right political decisions to get backing

for your bid for the throne. You have three types of staff: admin, political and, of course, the military. The numbers of these available you can see from the icons at the top right of the screen.

By selecting the panel in the bottom right of the screen, you can assign tasks to your staff. You use admin staff to arrange food, iron, timber and gold supplies, political staff to keep your people happy and make diplo-



matic missions to your neighbours, and the military to recruit more soldiers and attack new territories. When you set up a task like this, you will see a panel appear at the top right of the screen indicating the state of completion.

If you select a neighbouring territory you will be able either attack, spy or send a diplomat there. If you select your own territory, you can 'visit' the area, and you can choose to build a castle at that location.

Beyond that, it's all fairly self-explanatory — just

make sure you don't attack the Pope.

#### How to quit

In the bottom right hand corner of the screen, select the Option button and then select Exit.

#### Hardware required

Minimum 386 PC, double speed CD-ROM drive, VGA, mouse, 1Mb of RAM (configured as EMS). Sound Blaster compatible sound supported. 4Mb of free hard disk space.





# FRactal Design Painter 2.0

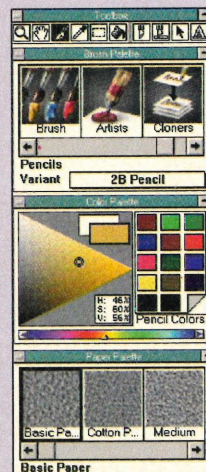
## Letraset

Try your hand at PC art with this full working demo of this unique creative painting package. Painter 2.0a enables you to create the look and feel of real brushes, chalks and all sorts of pens — and includes a dazzling range of effects.

## How to start

Painter needs to be installed to your hard disk, then you must create an icon for it in the Windows Program Manager. Select the program from the cover CD's Graphics and Music menu and, following the on-screen prompts, install it to a directory on your hard disk. Then launch Windows and go to the File menu. Select New, then Program Item. This will bring you to a dialogue box for the new program. Click on the Browse button and scroll through to the Painter.exe file. Select this and click on OK.

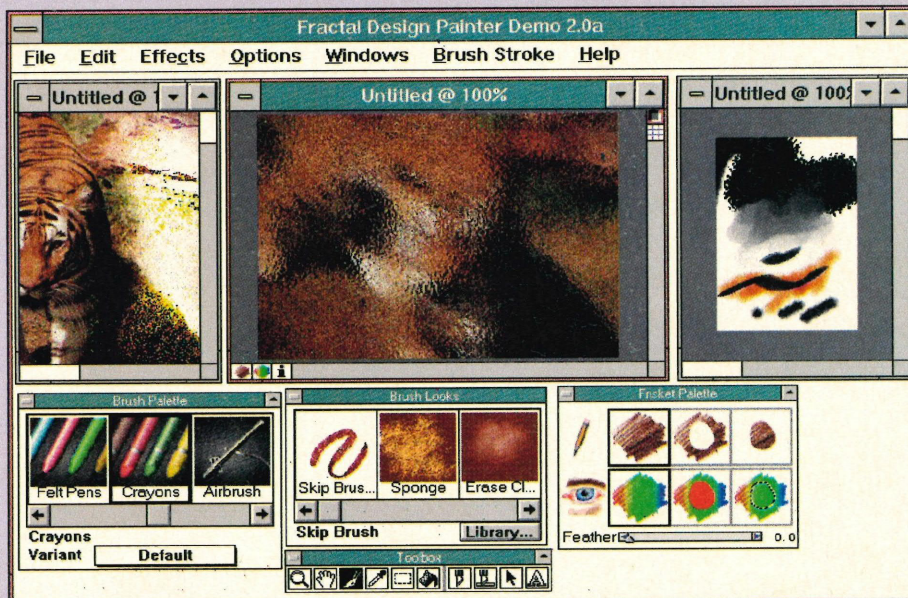
A new icon will be created in Windows for Fractal Design Painter 2.0a Demo. Click on this to start the demo.



## How to use Painter

Painter is a very powerful program packed with features. It takes a bit of time to get used to everything it can do.

However, the demo has a comprehensive on-line help system on the menu



bar, so you should be able to find the answers to all your questions in there.

The main palettes you need to get to grips with are in the 'Windows' option on the menu bar — try experimenting with the likes of brush styles, friskets, airbrushes, and glass effect filters!

The demo includes all of the features found in the full program, bar the option to print or save your images.

## How to quit

Go to File on the right hand side of the menu bar, and click on Exit.

## Hardware required:

Minimum requirements are a 386 PC, VGA, mouse, 4Mb of RAM, 10Mb of free hard disk space, DOS 5.0 and Windows 3.1.

## ZOO L2

### Gremlin Graphics

This fully playable extract from the CD game includes the introductory sequence and the first level from the game proper.

Your first big decision will be whether to play as Zool himself, or his equally agile and deadly female counterpart Zoos. Then you'll be whizzed smartish into the gameworld, a land chock-full of bonus fruits, baddies to zap, traps to avoid, you get the picture. The level is completed by picking up at least 99 of the bonus fruits.

## How to start

Select Zool2 from the cover CD games menu, and you're away!

## Controls

Directional movement is all controlled with the cursor keys. The spacebar is the fire key and to use a weapon, press Cursor-Up plus the spacebar.

## How to quit

Press Esc, followed by F12.



## THEME PARK

### Bullfrog/Electronic Arts

This CD version of the disk demo we ran in Issue 32 includes the rather splendid introduction.

## How to start

Select Theme Park from the cover CD games menu. The introduction will play directly from the CD; the demo proper will install to your hard disk in a directory called TPDEMO. To play the game, type PARK [Enter].

## Hardware required

386 PC, VGA graphics, mouse, 4Mb memory. If you have a Sound Blaster card, type SETSOUND at the C:\TPDEMO prompt and select Sound



Blaster FM for music and sound effects.

## Controls

All movement is mouse controlled. The left button controls placement of objects on-screen and brings up full information screens for the objects available.

## Star Trek The Next Generation Spectrum Holobyte

This is a non-interactive, or rolling, demo, but it will give you a very good idea of the standard of graphics, and the likenesses to the original TV characters achieved.

## How to start

Select Star Trek The Next Generation from the cover CD's games menu and follow the on-screen prompts. Star Trek TNG requires Microsoft Windows 3.1.

## HELP! MY CD-ROM IS DAMAGED

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If you're having problems finding your way round the cover CD, or making them work with your PC, try the PC Review CD-ROM helpline.

CD-ROM helpline: (0451) 810788

The helpline operates between 3.00pm and 5.00pm weekdays.



"This has to be THE best two player game on the PC, and is a strong contender for the best PC action game of all time."  
90% PC Games.

• The Bitmap Brothers •

# THE CHAOS ENGINE



• TIME FOR CHAOS •

IBM PC screen shots shown.

C1, Metropolitan Wharf, Wapping Wall, London E1 9SS. © 1994 The Bitmap Brothers. Published by Renegade.







# Cover disks

On this month's cover disk we have two brilliant fully playable demos. For arcade adventure fans there is Apogee's enormous **Mystic Towers**. For action freaks we have **Spectre VR** — the classic multi-player Mac game gets the PC treatment.

## MYSTIC TOWERS

### 3.5" disks only

Your evil ancestor Baron Lazarus built the Lazarine Towers and filled them with weird and vicious monsters. You, as the aged and undergarmentless Baron Baldric, must enter each tower, seek out the monster generator and destroy it using the generator bomb. Oh, and kill all the monsters, of course. This isometric arcade adventure is the latest game from Apogee, the company behind Commander Keen, Duke Nukem, Raptor and Halloween Harry.

### How to start

Log on to the directory in which you installed **Mystic Towers** (the default is **Towers**) and type

**TOWERS [Enter]**

It is not recommended that you try to start this program under Windows, Dos Shell, XTree or any other menu program.

### How to quit

Hit [Esc] to exit the game, then choose the Quit option on the menu to return to DOS.

### Hardware required

286, 640k RAM, colour VGA graphics. **Mystic Towers** supports Sound Blaster and Sound Blaster Pro, providing that the IRQ setting is no higher than 7.

### Controls

#### Mouse:

Movement: Left mouse button  
Jump: Right mouse button  
Action: Click on the action icon



Pull/push: Click on the pull icon  
Select spell: Click on the select icon

### Keyboard:

Movement: Cursor keys, numeric keypad or home, end, page up and page down keys  
Jump: Alt  
Action: Control  
Pull/push: Backspace  
Select spell: Space to scroll through spells, or number keys

### Joystick:

Movement: Joystick  
Jump: Fire button 2  
Action: Fire button 1  
Pull/push: Fire button 3  
Select spell: Fire button 4

### How to play

The idea is to explore the tower, kill the monsters and solve puzzles which allow you to make progress. You'll find several items, such as potions, food or keys, scattered around. The

action icon/key allows you to use or collect these objects.

To do this, stand next to the object, making sure you are facing it, and click on the action icon or press the action key. If you press the action key when not standing next to an object, you will automatically cast a spell.

The action key also lets you pull wall levers or press buttons which turn on lights, disarm traps or open doors. In addition you can teleport to different areas of the tower by standing on the blue circles and casting the teleport spell. Monsters will often get in your way, but small monsters can be killed by jumping on them.

However, to deal with larger monsters you have to cast spells at them until they die.

Offensive spells include lightning and fireball, but you can also heal your injuries and cure poison (you'll find you turn green when poisoned) with the healing spell. To save a game, press F2 and select a save game slot. Press F3 to reload.





# HOW TO USE YOUR COVER DISKS

PC Review's cover disks are tested at each stage of production, and rigorously checked for all known viruses. However, if you are new to the magazine, new to PCs, or simply having difficulties using the disks, read on for full instructions of how to use them.

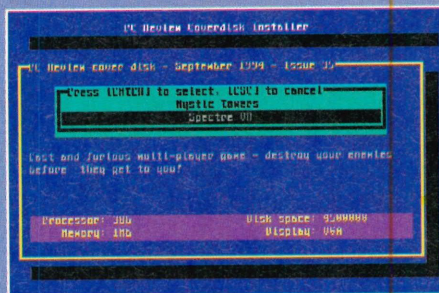
1. Put your PC Review cover disk into your floppy disk drive and log on to the drive, ie, type

A: [Enter]

Your floppy disk drive might be called B:, in which case substitute B: for A: above. We've used A: for convenience, since this is most likely to be your drive letter.

2. Type PCR [Enter] to bring up the installation menu (right).

3. Using the cursor keys, select the program you wish to install from the on-screen menu. Next you should check the disk and PC requirements listed at the foot of the screen; you will get an error message, for example, if there is not enough space on your hard disk



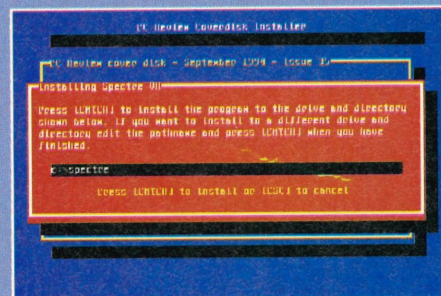
to install the program. Once you are satisfied, press Enter to confirm your selection.

4. The programs on the cover disk are compressed, so that we can fit more information on the floppy disk. The installer will decompress these files and copy them to your hard disk. After choosing the program to install, you will be prompted with the name of the drive and directory that the installer intends to decompress the program you've selected to. There's no need to change this default drive and directory, unless, a) your hard drive is not called C:, or b) you already have a directory with the same name as the one that is

also suggested on-screen.

If you do want to change this default, just backspace over the installer's suggestion and type in your own preferred destination, eg, D:\MYSTIC, instead of C:\TOWERS for Mystic Towers.

5. The program files will now be decompressed and copied to your hard disk. After they have done so, you will see a screen explaining how to access the demo from your hard disk. There are also instructions for starting and playing each program on these pages. Press Enter to return to the PC Review installer menu.



6. Either press Esc to quit the installer, or use the cursor keys to select another program, and run through steps 3-6 again.

## I can't free up enough system memory

You can check the amount of free memory by typing MEM at the C:> prompt. If the number listed as memory free at the end of the resulting screenfull of numbers is under 500,000 bytes, you may have difficulties running the programs on the disk.

If you think you have a memory problem, first make sure that you don't have any memory-resident programs open in the background. This might be a desktop organiser, or DOS Shell, or you may be working inadvertently in a DOS under Windows. Try typing EXIT to see if that takes you back to another program rather than just giving you the C:> prompt again.

If you cannot free up any memory this way, and you don't fancy editing your Config.sys and Autoexec.bat files, you can always make a boot disk, which is a quick and easy way to make a disk containing just the bare bones of DOS to run your PC and lots of free system memory.

A detailed description on making a boot disk is given in our technical help section on page 122. What follows is a quick guide:

Take a blank, formatted floppy disk. Put it into your disk drive. Now, at the C:> prompt, type

SYS A: [Enter]

This will copy the three system start-up files that you need to boot the PC over to the floppy disk. You can now start up your PC from this boot disk — just put the disk in the floppy disk drive and switch the PC

## COMMON PROBLEMS

on. Note that because there is no Config.sys or Autoexec.bat file on the boot disk, you will have to load things like mice or sound card drivers separately. Type C: [Enter] to get to the C:> prompt, and load your mouse separately. Often, the mouse driver is called MOUSE.COM and it sits in a directory called MOUSE, in which case type

MOUSE\MOUSE [Enter]

### The mouse doesn't work properly

If your mouse cursor won't move at all, you either don't have the mouse loaded, or you don't have the correct mouse driver for this program. Quit the program and load up the mouse, or use an alternative control method if possible.

If the mouse will only move across half the screen, this is probably a driver compatibility problem. If you have another mouse driver, try using it instead of your normal one. You could also try getting an updated version of your current driver.

### I type in the command to start the game but it just says "Bad command or filename"

If you have a prompt on-screen that just reads C:>, and still says C:> even when you type CD [correct directory], then type in this command from C:>: PROMPT \$p \$g. This command should really be in your

Autoexec.bat and will always show you which directory you're in. If it's missing from the Autoexec.bat file, it can cause confusion when you log on to subdirectories.

Basically, if you want to start the game Tharg and the Tharg.exe starter command is in the Thargoid directory, then you need to be logged on to C:\THARGOID before it will work. Typing THARG from the root directory (C:>), or anyway else, (C:>DOS) will give you an error message.

If all else fails, try the PC Review disk helpline on (0451) 810788. There are full helpline details over the page.

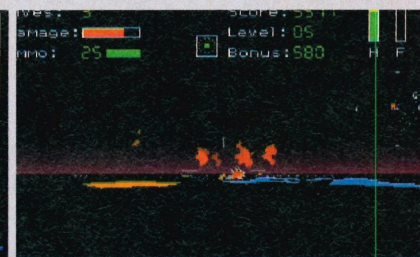
### Please note:

- PC Review's cover disks are rigorously checked at each stage of production for all known viruses and duplicated under strict quality control.
- However, cover disks are used at the reader's own risk. PC Review can accept no responsibility for damage to either data or hardware caused by use of our cover disks.
- We also make every effort to ensure that the contents of each disk are exactly as advertised. If, however circumstances should dictate that we are unable to supply the stated program we will endeavour to supply alternative software. PC Review, its distributors and retailers will not be held responsible for any unnotified changes to the contents of the disks.



## SPECTRE VR

3.5" and 5.25" disks

**Controls**

Cursor keys	Move ship
Space	Fire
Esc	Quit Game

**How to play**

The aim is simple in this space age shoot 'em up: tool yourself up, then take good aim and try your best to shoot everything that moves, whilst, of course, avoiding getting shot yourself.

When zooming across the planetary surface, you should also collect all the flags you can find on the level to help you advance.

And if you wish to replenish your ammo supply and repair damage to your craft, try manoeuvring over the green squares.

Of course, before you start, enter the options screen to select sound card, choose music and set difficulty and graphic detail.

If Spectre VR runs slowly on your PC, turn off the various options under the display heading.

**S**pectre VR, the classic Apple Mac shoot 'em-up, has finally arrived on PC. This fast and furious action game puts you in control of a high-tech virtual ship, and you



must enter the battle arena and dispose of your opponents before they blast you into cyber chunks.

**How to start**

Log on to the directory in which you installed Spectre VR and type

**DEMO [Enter]**

Alternatively, go into Windows, select "Run" and then type in the path name to start the demo.

**How to quit**

Hit [Esc] to exit the game, then choose the Quit option on the menu to return to DOS.

**Hardware required**

16MHz 286 (386 recommended), 2Mb RAM, colour VGA graphics. Spectre VR supports Sound Blaster and compatibles and Ad Lib.

You can run the game either under DOS (minimum version: 2.1) or Windows 3.1.

## HELP! MY DISK IS DAMAGED

Out of the thousands of disks we duplicate every month, a very small number may get damaged during transit. If you think your disk might be faulty, we'll replace it. Just pop the disk(s) in a jiffy bag with a self-addressed envelope and postage to the value of 28p (55p from overseas) and the form below (filled in), and send the package to the following address:

**DiskXpress  
Unit 17  
Willow Court  
Bourton Industrial Park  
Bourton-on-the-Water  
Gloucestershire GL54 2HQ**

Please **DO NOT** send the disks back to PC Review — we don't hold stocks of spares.

Name .....

Address .....

.....

.....

.....

The disk on my copy of PC Review was damaged. Please send me a replacement — I enclose return postage to the value of 28p (55p if overseas) and the original disk.

## HELP! I CAN'T GET THE DISK TO WORK

**If you're having problems finding your way round the disks, or making them work with your PC, try the PC Review disk helpline.**

**Disk helpline:**

**(0451) 810788**

**The helpline operates between 3.00pm and 5.00pm weekdays.**

**Please note: this is a new helpline number. Don't call the old number — you won't get through!**



# HE'S BACK!...



**ZOOL 2 is a very good sequel to an excellent game -**

**PC ZONE** recommended.

**I'm partial to a bit of platformering**

**and ZOOL 2 is a classy example of the genre.**

**PC REVIEW**

**... And it's better than Cool Spot!**

**PC FORMAT**

**Zool fans are going to go for this, like**

**Sega-heads went for Sonic 2.**

**It's all here - smooth, fast and addictive platform action.**

**PC HOME**

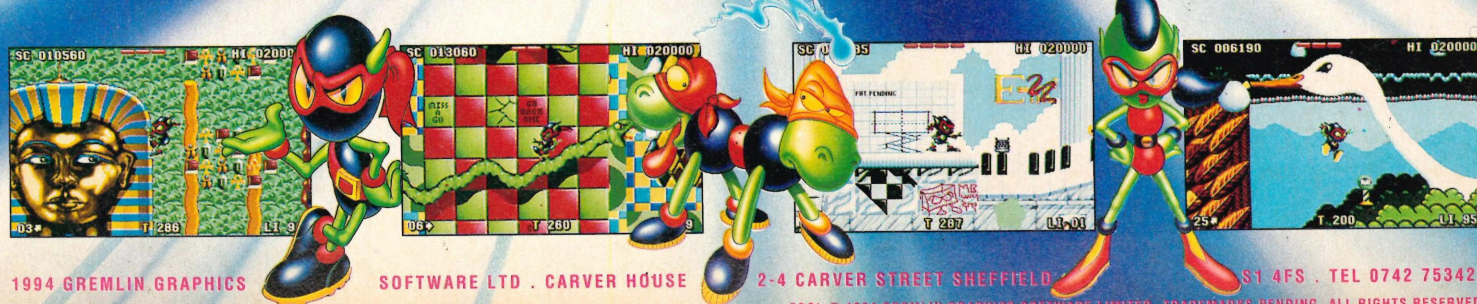
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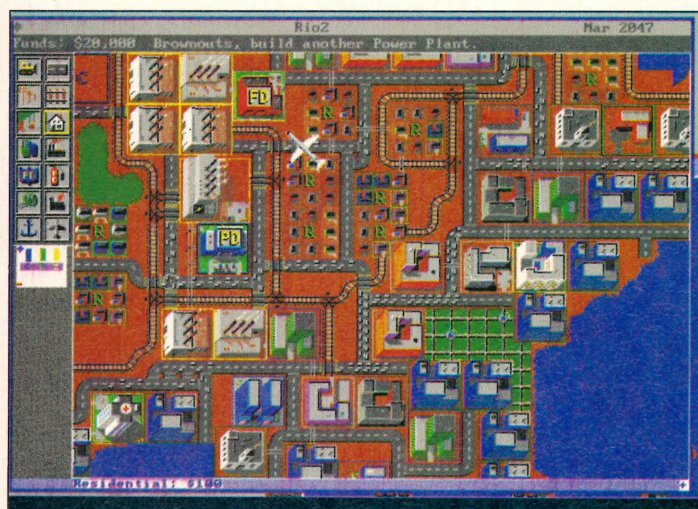
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# News

## Ken seizes power in SimCity



**Beyond our Ken? The Brent MP grapples with the complexities of SimCity 2000.**

**M**eltdown in Manchester! Destruction in Darlington! Aliens in Ayr! Hurricanes in Harrogate! Earthquake in Esher! Can controversial Labour MP for Brent Ken Livingstone be the cause of all this havoc?

No, of course not, but the former leader of the now defunct Greater London Council was so struck on the idea of a computer program which allows you to plan your own city minutely from sewers to skyscrapers, roads to reservoirs, factories to fun parks that he decided to support a new nationwide SimCity 2000 competition called Home is Where the Heart Is.

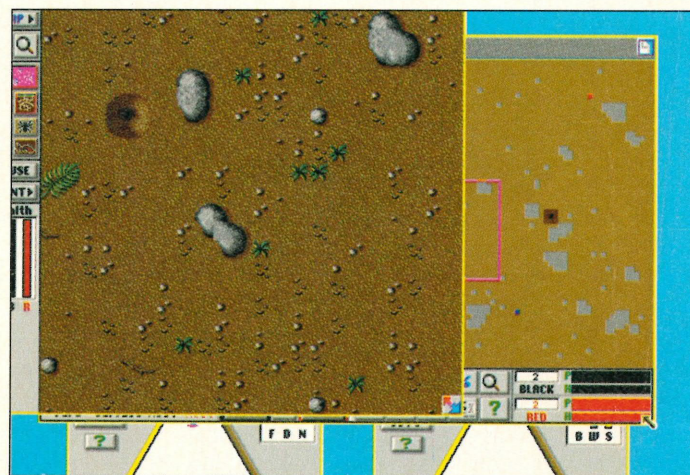
Maxis, the software house behind the hugely successful game, wants fans of the game to produce a working simulation of their own home town, city or village. The best entry will win the first copy of SimCity 2000 CD-ROM, signed by creator Will Wright, a plaque engraved with his or her name, a signed copy of the original box artwork, and a Maxis rugby shirt. Ten runners-up will also get a copy of the CD-ROM version and a rugby shirt.

SimCity 2000 CD-ROM, due on sale around Christmas, includes an Urban Renewal Kit which allows you to redesign buildings from scratch and place them in your favourite city. Competition entries should be sent to Home is Where the Heart Is, Maxis Ltd, 18-20 St John Street, London EC1M 4AY. All entries must be in by 31st October 1994. If you want your disk returned, enclosed a stamped, self-addressed envelope. Contact Maxis on (071) 490 2333 for further details on the SimCity competition.

SimCity 2000 for Windows, for OS/2, for Networks and Educational Kit are also planned for release during the rest of 1994.

Maxis also releases Collection 1: Sim Classics — comprising of Sim City Classic, Sim Life and Sim Ant — for a limited period, price £39.99.

● Maxis is the subject of this month's PC Review Profile, starting on page 42, with full of all details of forthcoming products.



## Going LIVE

**L**IVE '94, the consumer electronic show featuring what is hoped will be Christmas best-sellers, will be held at London's Earls Court for six days from 20th to 25th September.

The show covers games, computers and multimedia entertainment, TV and video, hi-fi, home cinema, musical instruments, camcorders, cameras and much more.

In addition to the stands and exhibitions, there will be live television and radio broadcasts from the show, seminars and specialist masterclasses. Sony, Sega, Nintendo, Panasonic, Toshiba, Apple and Electronic Arts are confirmed attendees.

Ticket prices are single adult £4 (weekdays), £7 (weekend), children £3 (under 16s must be with an adult), and a family ticket (admits up to two adults and three children), £16. Contact News International Exhibitions on (0891) 500103 for details.



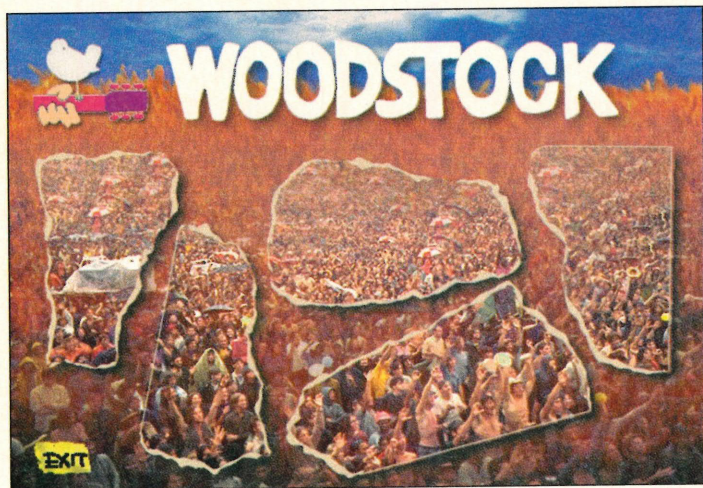


# CD-ROM takes centre stage at show

**T**wo of the interactive entertainment industry's biggest companies declined to attend the Summer Consumer Electronics Show in Chicago this year. The absence of Electronic Arts and Sega left the vast McCormick North hall looking a bit empty, but Summer CES is still the world's main showcase for all the games lined up for the autumn.

The main talking point (aside from Donkey Kong Country on the Super Nintendo, which was quite a talking point but not exactly PC-relevant) was the sheer number of CD-ROM games compared to disk-based titles. It's no longer a case of CD games solely being 'enhanced' versions of their original disk counterparts, but of games being produced for CD-ROM only. Some of this autumn's hottest titles, such as The Dig, Stonekeep, Under a Killing Moon, or Command and Conquer, will never see a floppy disk. True, this state of affairs has been predicted for some time (in PC Review as long ago as Issue 24), but the Chicago show was confirmation that the day is here and now.

## Three days of peace and love on CD-ROM



**T**ime-Warner hopes to appeal to those of a certain age with a documentary style CD-ROM on the Woodstock festival of August 1969 (though of course, if you can remember it, you weren't really there).

Woodstock 25th Anniversary is a CD-ROM rendition of the music, the people and the mood behind the three day festival in upstate New York. There are audio and video clips from The Who, Jefferson Airplane, Ten Years After, Janis Joplin among others, a 'where are they now' section and even a psychedelic paint program (very basic) contained in the package. It's due to be released around now to coincide with the anniversary of the event, priced at £29.99. Details from Time-Warner on (0604) 602800.

Other stars of the show were Westwood Studios, with a very impressive-looking product line-up and the contract to develop Disney's latest blockbuster, The Lion King, which should also be available for the PC this year.

This year's Summer CES also marked the arrival of heavyweight, multinational companies into the interactive market. Paramount, 20th Century Fox, Simon & Schuster, and Time-Warner all exhibited, Sony has been around for a year or so now, and MCA and Blockbuster were also here, the former through its stake in Interplay, the latter with its recently-acquired large share of Virgin Interactive Entertainment.

So, did Electronic Arts feel it had missed out by not attending? "As Europeans it was not important to be there. We've already had our meetings with the trade for this Christmas, so really it was just a case of business as usual and a missed 'jolly' in Chicago," said David Gardner of Electronics Arts UK.

For lots, lots more on the games on show at CES, see pages 90-95.

## Headsets a go-go

**Y**ou're just not properly dressed these days unless you've got your Virtual Reality headset on. Three sets were on display at CES, each promising the ultimate VR experience. Forte Technologies' VFX1 (see PC Review, Issue 31) was the most widespread, popping up on Ocean's stand for use with Inferno, and Virgin's for use with Flight Unlimited as well as VR Doom on Forte's own stand.

VictorMaxx also showed off its CyberMaxx headset, which is intended to cost around \$700 when launched into select US stores this month. It's also due for release in the UK this autumn.

The third headset, the Astounding, from Astounding Technologies, scores highly for picture resolution, although the screen is smaller than both the other two, and also was displaying demos only rather than an interactive game. Details of release into Europe have still to be finalised.

## Software appears at last for Reelmagic

**S**igma has been promising a slew of software compatible with the MPEG playback Reelmagic card for a while now, and at CES it had 20 new titles on display. These ranged from The Horde, complete with full-screen video introductory sequence, to full motion video-based graphic adventures such as Psychotron (pictured) and Flash Traffic. Then we have more 'fringe' offerings such as



Cowboy Casino, a video-based simulation featuring a number of gambling games, and California Girls and Matinee, both screen savers. These products should all be coming to the UK through Sigma this autumn and early next year.

## Early learning flourishes

**I**f most of the new PC titles were being shown on CD-ROM, it's also true that much of the CD-ROM titles on display had an educational slant. The 'edutainment' market in the US is large and well-established compared to Europe, but given the clout of some of the exhibiting companies we can expect much more in the way of edutainment to be distributed here in the coming year.

Products such as Viacom's Nickelodeon Director's Lab, which uses multimedia to enable children to put together their own 'films' on the PC, or Maxis's Widget Workshop, a mathematical and statistics program cunningly disguised as an Incredible Machine type game, sat alongside the more standard reference CDs such as Adam: The Inside Story (detailing the human body) and Software Toolworks' World Atlas series.

While many US-originated edutainment titles aim to develop general skills (one stand representative described them as "lifestyle tools" — yuk!), the UK equivalent tends to concentrate more on specific areas, particularly with reference to the National Curriculum. How much British parents will be prepared to shell out for something to enhance "lifestyle" skills when the child itself is pleading for Doom 2 remains to be seen.



# Ready, steady, Pro!



Joystick makers CH Products — the company behind Flightstick, Flightstick Pro and Jetstick — launches a new range of controllers for various computer formats this autumn.

New for the PC will be Virtual Pilot Pro, an upgrade of Virtual Pilot (pictured below). A set of rudder pedals and throttle are also planned for release.

CH's proud boast is that chief

executive officer Greg Stearns is a retired naval commander and former FA-18 Pilot with more than 4,000 flight hours in single seat jets and every controller must pass his tests before it is released.

Prices and exact launch dates have yet to be announced. But trade and retailers will get a first look at all the new products at the European Computer Trade Show in London in September.

## Creative targets office users

A new 'multimedia office' bundle has been launched by Creative Labs, with a price tag of between £450 and £500. The package includes a Sound Blaster 16 sound card, double speed CD-ROM drive, Microsoft's Office Professional 4.3 (which includes Word 6.0, Excel 5.0, PowerPoint 4.0, Access 2.0 and a workstation licence for Mail 3.2), Microsoft Encarta Encyclopedia, Microsoft Sound System 2.0, and Creative VoiceAssist and TextAssist.

As reported last month, Microsoft, creator of MS-DOS, and sound specialists Creative Technology have formed an alliance to develop PC sound technology further. This 'strategic relationship' also means that the Creative's Sound Blaster 16 will be included in all future Microsoft products and that Windows Sound System 2.0 software will be included with Singapore-based Creative's sound boards.

Creative Labs UK can be contacted on (0734) 344322 for further details.

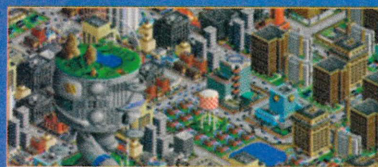
## Pre-tax profit of £73m for Dixons

The Dixons Group — owners of Dixons, Currys and PC World stores, made a pre-tax profit of £73.3 million in the 1993/94 financial year compared with £76.7 million for the previous year.

The company opened 27 Currys and three PC World Superstores during the 12 months and have plans to open more than 40 superstores this year.

Sales of computer games consoles and camcorders were down 20 per cent for the year, the company announced. Total sales in the PC World stores topped £67million.

## PC CHARTS



### Disk-based games

- 1 TIE Fighter *LucasArts*
- 2 SimCity 2000 *Maxis*
- 3 Theme Park *Bullfrog/Electronic Arts*
- 4 Harpoon 2 *Electronic Arts*
- 5 1942: Pacific Air War *MicroProse*
- 6 Kick Off 3 *Imagineer*
- 7 The Settlers *Blue Byte*
- 8 Cannon Fodder *Virgin*
- 9 UFO *MicroProse*
- 10 Hexx/Innocent Until Caught *Psygnosis*

### CD-ROM games

- 1 Outpost *Sierra*
- 2 Theme Park *Bullfrog/Electronic Arts*
- 3 TFX *DID/Ocean*
- 4 The 7th Guest/Dune *Virgin*
- 5 World Atlas 4 *Software Toolworks*

Charts compiled by Virgin Retail



## In Brief

● A new version of Software Toolworks' CD-ROM driving game MegaRace is being developed to take advantage of the "innovative features" of Logitech CyberMan joystick. The joystick gives a range of control which could only be achieved previously through a combination of joystick or mouse and keyboard. The game and joystick package will sell for £69.99. Contact (0444) 246333.

● MJN Technology has launched two new Pentium-based PCs — one using the Pentium 90 chip, and the other the top-end Pentium 100. The cost is £1,899 and £1,999. Both models come with 8MB RAM — expandable to 128Mb — a 540MB hard drive, 15 inch SVGA monitor and CD-ROM drive. Both come with Lotus SmartSuite, Improv and operating system installed. Tower systems are available for an extra £50. Contact (0282) 777555.

● Flight simulations Tornado and Falcon 3.0 are being released in a "twin pack" from Digital Integration. The CD-ROM version includes a Merlin Helicopter flight sim developed for DI for the Royal Navy. Disk and CD versions will sell for £39.99. Contact (0276) 684959.

● Computer superstore chain PC World has opened a new outlet in Northern Ireland this summer. The 28,000 square foot store at Sprucefield, Lisburn, will open for business on 13th August, creating more than 50 new jobs in the process.



# Laser light on pocket

**T**he WinType 4000, Star Micronics's new 600 dpi, 4ppm GDI Laser printer, has gone on sale at £399.

It has been optimised for use with Windows-based application software, but it also offers DOS users PCL 4.5 and PostScript emulation through Windows. Control and operation is via on-screen. The printer's footprint (the

amount of space it takes up on the desktop) is just over A4 and it has a top loading 100 sheet paper hopper.

Minimum system requirements are 386SX, 16 MHz, 4Mb RAM, 8.5 Mb hard disk space, parallel port, Windows 3.1 in enhanced mode, DOS 3.3 or above, and a quality parallel table. Star Micronics can be contacted on (0494) 471111 for further details.

## Taking care

**C**omputer retail and mail order company Silica has launched a new extended warranty deal on all its hardware products. The "SilicaCare" deal provides repair and replacement of single components or the entire system and can be arranged to cover up to five years.

For example, a two year warranty on a product worth up to £200 would cost £19. Complete two year cover for a £1,500 computer system would be £38. It also includes a free courier collection of the equipment, free delivery after repair — normally within seven to ten days. There is no limit to the number of service request during the period of cover.

"As computers become part of everyday homes, more non-technical users want the assurance of a total service package," said Silica's Ken Browning.

For further details of the plan contact Silica on (081) 309 1111.

## UK games firm bought by US

**A**nother British games and entertainment development house has been bought out by an American company.

Newbury-based PMC — Project Management Consultancy — has been acquired for an undisclosed sum by Creative Insights, of Cupertino, California. PMC will be renamed Creative Insights Europe Ltd.

PMC founder Jon Dean — who has worked as co-designer and producer on products such as Outrun Europa, Powermonger and Indiana Jones and the Fate of Atlantis Action Game — will become managing director of Creative Insights' business unit, and will work with Creative Insights founder Joe Ybarra.

In the past Dean has also worked for Atari, Activision and Sprytes and worked as a consultant for LucasArts

and MicroProse among other entertainment companies.

PMC had been developing 32-bit interactive multimedia entertainment titles due for release in the first half of next year. These titles will continue, with ideas, technology and talent now being shared with the new Californian owners.

The chairman and chief executive officer of Creative Insights, Ed Esber, said of the acquisition, "Jon Dean has the mind of a manager and the soul of a gamer. PMC has an impressive record of designing commercially successful games."

Last month PC Review reported the buy-out of Durham-based budget specialist Zeppelin Games by US publisher Merit for an estimated \$2.2 million. Zeppelin will now be re-named Merit Studios (Europe).



## EDITOR'S COMMENT

### Where's the beef?

**I**t was my arduous duty last month to fly to Chicago to visit the Consumer Electronics Show, the place to be to see for anyone wanting to find out just what games are coming out this autumn (work is so hard sometimes).

Now I know we go on a bit in the magazine about games not being what they used to be, but the more new wonder-games I saw, the more noticeable it became that the best games on show at CES would have struggled to come up with a single frame of full motion video between them. I'm talking here about personal favourites, such as the follow-up to SimCity 2000, Sim Tower, about Sid Meier's Colonization, the new offerings from LucasArts, Full Throttle and Dark Forces, or the latest Kyrandia, about projects such as Cyberia from Interplay. There were plenty of very exciting new games on display, many of which we've profiled in this issue, starting on page 90.

There was also a disturbing number of utterly mediocre offerings, some from large, wealthy publishers who really should know better, which frankly lacked imagination or any understanding of what makes a good game, as opposed to a good pseudo-movie, or a database cunningly disguised as an "interactive resource".

(Not that "interactive resource" was the worst cliché being bandied around. At this summer's CES, "inspired by Doom" rapidly became the emptiest phrase used to describe anything which played from a first person perspective.)

Anyway, I can do without people who seem to think that a screen saver is worthy of your exclusive attention — or worth £40, come to that. I can't see the point of a CD on dangerous sports that turns out to be little more than a photo-montage — you can't actually try out any of the sports, simulation-style, and Software Toolworks, you should know better. I can see very little merit in an Windows tutorial program, whose "most truly unique feature" (see clichés, above) is that you can set your on-screen 'tutors' to have a high, low or random "banter factor" — which means they say things like, "Hey guys, Windows is a gas", or tell bad jokes when you're trying to master Pasting to Clipboard. Miserable old cow, aren't I?

Indeed, I fear I may be turning into a multimedia Luddite, forever muttering into my beer about lack of gameplay and how Knight Lore could knock spots off those brash young things that call themselves games today.

You see, I have a recurring nightmare about a CD-ROM version of Civilization, which starts with a 20 minute introduction, in which some actors from US daytime TV are dressed up in animal skins and pose round a little campfire against a blue Chromakey background. Later an artist fills in this backdrop with some 3D rendered backgrounds which show Stone Age land to be a squeaky clean and shiny paradise with rolling hills, sparkling reflective water and textured digitised trees. A narrator talks deeply and earnestly about "the dawn of time" and "our ancestors" discovering "fire, the breath of life". After sitting through this, you finally get to the game, but now, every time you set up a new city, the same actors, now in period costume, are shown sawing wood, slapping bricks one on top of each other, loading up the wagon, etc, in a tiny video clip in the middle of the screen. You'd never do that to me, Sid, would you?

■ Christina Erskine

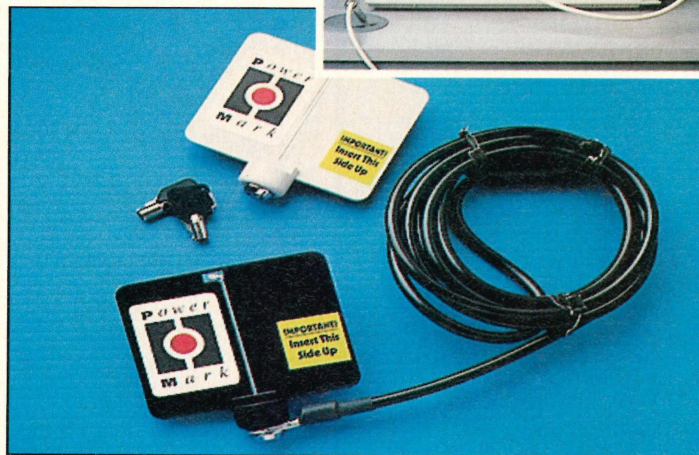
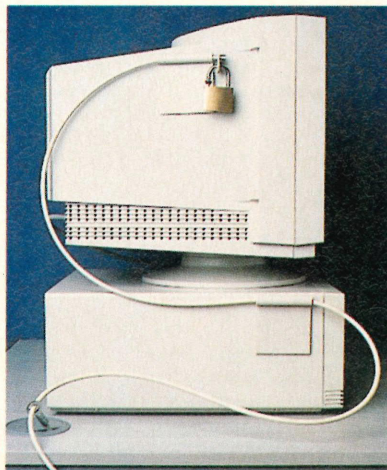


# On guard!

**A**re you a victim of pinched PCs, pilfered peripherals or nicked notebooks? A new cable security device could be the answer to your walking hardware problems.

California-based PC Guardian's Universal Cabling System — price £25.95 — allows several pieces of equipment to be linked and secured to a desk. The £34.95 Notebook Guardian secures your computer open or closed.

The computer security company also makes a Floppy Disk Drive Lock to prevent access to the drive. A bootable disk can be left in the drive and remain operational even with the £14.95 lock in place. PC Guardian's security products are distributed here by Powermark, telephone (081) 951 3355.



## US Gold unveils World Cup Golf

**U**S Gold has launched World Cup Golf, intended to be "the most realistic golf game of all time", according to producer Steve Hickman. Due for launch this autumn, World Cup Golf will be released simultaneously on five separate CD formats, including PC CD-ROM — it's not intended for release on disk at all.

The PC version has over 800 megabytes of pre-rendered images for the course, the Hyatt Dorado Beach Golf Resort in Puerto Rico, and up to 64 people can play at once (though whether up to 64 people can gather around your PC is another matter). Players can compete according to golf's World Cup tournament rules, or in one of 15 other tournament modes.

World Cup Golf is being developed in a joint venture with UK-based

team Arc Developments. USG is keen at the moment to build up its own-brand games line-up, having traditionally published titles under licence mainly from US firms. As well as setting up joint ventures with Arc, the company is also investing in its own development facility, called Silicon Dreams.

The departure of LucasArts (see PC Review News, Issue 34) has left US Gold with more time to devote to in-house projects and its other licensors, such as Access and New World.

"We need to develop the US Gold brand, and anyway, Lucas wasn't our only licence. We've got people like Access, for example, which may not be so high profile now, but it has the Links series, which is the best-selling golf game and Killing Moon coming out this autumn," said Bridgett Hirst, of US Gold.

# BT objects to 'Net A-Z

**T**he first A to Z guide to the Internet, the global information network accessed via computer, modem and telephone lines, has just been published in the United States and the UK.

But the book, *The New Riders' Official Internet Yellow Pages*, has run into problems with British Telecom, according to the UK distributor Computer Manuals. The telecommunications giant has objected to the use of the name Yellow Pages. The Indianapolis-based publishers New Riders Publishing will have to change the name of the book for future issues.

The guide has more than 10,000 entries cover a vast number of topics, from news to technology, sex to economics, and religion to literature. Overall, the scope is vast. It costs £27.49, and you can contact Computer Manuals on (021) 706 1188 for details.

## Sign of the Times

### One year ago...

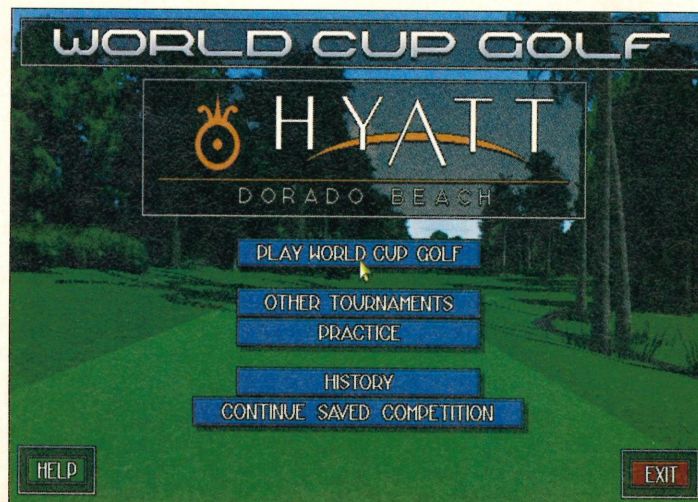
There were worries that the price of computers were set to rise following a massive explosion and fire which destroyed a Sumitomo Chemical Company in Niihama, Japan, which made 55 per cent of the world's supply of epoxy resin — crucial for making the plastic packaging around RAM chips and microprocessors. Things did not turn out that badly in the end. Prices may not have risen but the long-trend in falling prices was halted for a while.

The classic comic adventure *Day of the Tentacle* was the game setting the pace a year ago, with a well-deserved 9 rating in PC Review, Issue 23.

### Two years ago...

PC games began to come out of their traditional role-playing, flight sim or deep strategy shell as more mainstream types of computer entertainment began to take top marks in the reviews section. Publishers were at last developing games for the PC and then converting them to other formats, rather than the other way round.

Top honours went to *Indiana Jones and the Fate of Atlantis* (the adventure game) and *Jimmy White's Whirlwind Snooker* (Virgin) both of which scored a nine rating. And the flight sim *Aces of the Pacific* (Dynamix/Sierra On-line) scored eight. All three of these games would still make fine buys today.





## Voice plus fax card for £210

A new voice/fax modem card which enables automatic receipt of voice, fax and data over the phone line and into the PC has been launched at just £210.33, inclusive of VAT. The VFP14.4V card, manufactured in America by Zoom and distributed in the UK by Electronic Frontier, requires a 386 or higher PC and one free 16-bit ISA slot. It comes complete with all the necessary software, including FaxWorks for Voice, and is backed up with a seven-year warranty.

Electronic Frontier says the card is ideal for small office or home PC users. It can automatically answer an incoming call with a pre-recorded message, identify the calling device — voice, fax or modem — store the incoming data or messages to disk. Contact Electronic Frontier on (0734) 810600 for details.

## Carry on camping with your computer

A Europe-wide series of computer and information technology camps for 11 to 14-year-olds is being set up by data storage company Verbatim. The first two five day 'Data for Life' camps were attended by 100 children at schools in Staffordshire and Dorking, Surrey. Basic instruction on programming, talks and demonstrations by industry representatives, computer games, quizzes and competitions plus a varied sports programme made up the daily schedules. Life at the camps was recorded on video along with diaries on hand-held computers which will later be edited and transferred on to CD-ROM.

The children are selected from schools throughout the country and sponsored by Verbatim distributors and dealers.

The Data for Life camps are part of Verbatim's 25th anniversary celebrations. It also plans to establish an annual programme of science and technology bursaries for higher education. Companies supporting the camps, also held in Ireland, France, Germany, Sweden, Finland and Norway, include IBM, Amstrad, Microsoft, Acorn, Acer, Lotus, Epson and Cannon.

For details of future computer camps contact Active Consultancy on (0372) 466310.

## Compaq attacks the home market

As part of its declared aim to become the world's largest personal computer company by next year, Compaq has unveiled battle plans to dominate the UK PC retail sector.

It is targeting the small office and home user this autumn with new multimedia PCs backed with customer care and support plans.

"There is still everything to play for in the retail sector which for Compaq represents an entirely new battleground," says David Miles, Compaq's UK retail director.

Its campaign to persuade retailers to stock Compaq product includes:

- A build-to-order facility at its Erskine, Scotland, manufacturing plant, enabling retailers to order exactly what their customers want.

- Extensive retailer support materials to help sellers give customers accurate information about machines.

- A deal with Systems Reliability, one of the UK's largest independent maintenance firms, to provide retailers with warranty and service advice.

Compaq is also stepping up its marketing campaigns, including sponsorship of Queens Park Rangers FC, to increase brand awareness.

Contact Compaq on (081) 332 3888 for more information.

## THE COOKE REPORT

The invitation to look at a MOO was just too tempting to resist ...

Here's a jolly idea for you. How do you fancy getting a copy of a game design program that allows you to program your own virtual worlds, complete with objects, computer-controlled characters, locations, puzzles and quests for glory? And what would you think if the interface had a big red button called 'global access', which, when pressed, opened your creation to games players all around the world, summoning them to simultaneous interaction and mayhem at your command?

And all this free of charge? What do you think of that, eh?

I'm afraid I didn't think much of it, myself. People are always coming with these sorts of ideas about games and most of them either never go anywhere or else, when they do, fall painfully on their backsides. So when Jo Wright summoned me to the University of Westminster to see this idea in action, I was mightily sceptical. "It's called a MOO," she said, and you can imagine what I was tempted to reply.

But I made the journey and it just goes to show that you should never prejudge these things. MOOs certainly are interesting. In themselves they may prove to be a dead end, but the basic concept seems to be one of the most important to hit the games world for some time. So here's what it's all about ...

You know what a text adventure is. If you don't, it's a romp from one location to another, where the computer describes your surroundings in glorious prose (*You can see: a table*) and allows you to type in complex commands (*Get knife*). You find objects, use them to solve puzzles and, if it's very advanced, have a chat with a computer-controlled character (NPC) on the way.

You know what MUD was. If you don't, MUD (Multi User Dungeon) was a compelling work of interactive fiction (a quest for treasure) running on a mainframe computer which could be played simultaneously by respected members of society (games fanatics) who would act out roles founded on profound psychological archetypes (Slasher the Wizard).

The trouble with MUD was that the game was always the same, even if the players came and went. And after a while, because the game was always the same, the players ended up being all the same as well. The only people who could stick the monotony were either inveterate network gossips, journalists writing articles about the system, or just very sad.

MOOs (MUD Object Oriented) is to adventure games — indeed, to on-line games in particular — what the 1917 Revolution was to Tsarist Russia. A MOO starts out with an environment, designed by the original ... er ... cow. Every player has the right (assuming the game controller grants it, and most will) to create their own rooms, suites, even cities within the MOO. They can create objects, attach all sorts of attributes to them, even create and program autonomous characters (effectively animated objects).

MOOs are currently accessed over the Internet. There are all sorts of different ones, many of which are dedicated to special themes and which demand that the participants explore that theme in their constructions. There's a MOO for everyone, including (I expect) those with an overdose of testosterone.

The real beauty of this concept is that it extends beyond games. The idea of an environment in which many people can communicate from all around the world, which can be modified to reflect the nature of their communication, is a powerful tool for business and academia alike. One of the original inventors of the MOO, a chap called Pavel Curtis (now working at Xerox), is apparently working on one for astronomers. Heaven knows what sort of world Patrick Moore would create, but I'd like to visit it. It sounds like the sort of dynamic medium which could open entirely new ways of expressing and exploring ideas.

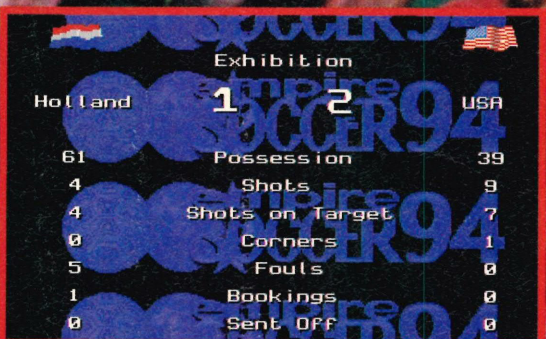
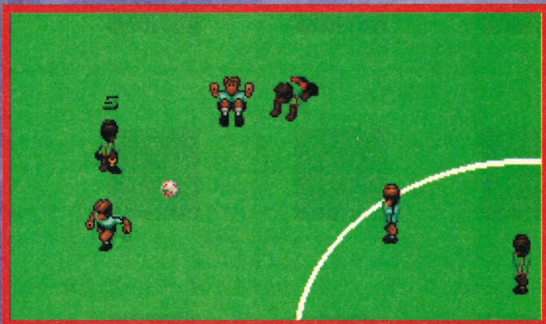
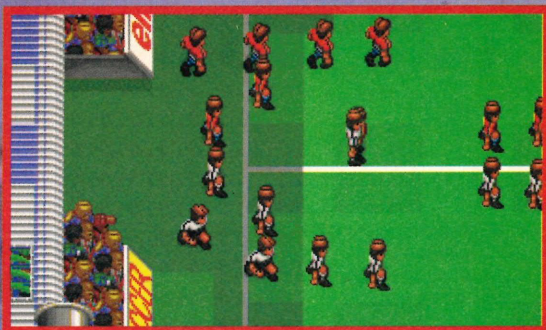
If you'd like to visit a MOO, e-mail me on [electric@cix.compulink.co.uk](mailto:electric@cix.compulink.co.uk) and I will reply with connect details (or you can write to me at the usual PC Review address). I'd also be interested to hear from anyone who can think up some novel applications for MOOs. If you can come up with something original (which shouldn't be difficult), we'll feature it in a future column. And many thanks to Jo Wright and Andy Cameron of the University of Westminster for taking the trouble to introduce me to the PMC MOO in Virginia USA.

■ Steve Cooke





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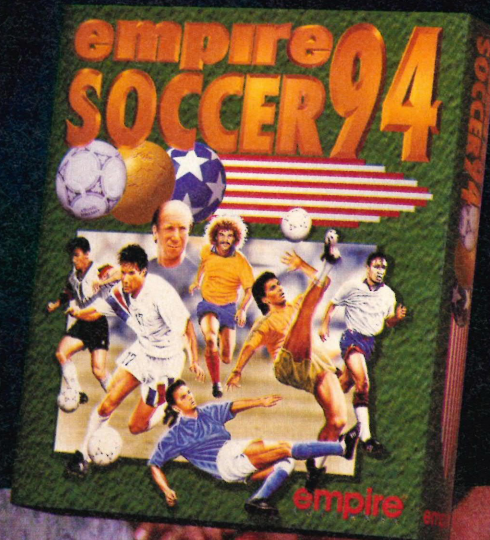
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# FROM THE CROWD!



# It's raining CD-ROMs

## But is now the time to buy?

The explosion of CD software has driven the hardware people into a frenzy of development and price-cutting. Is now the time to buy that double speed drive you've had your eye on, or will it pay to wait for what's just around the corner? John Bennett investigates.

FEATURES



Single speed CD-ROM drives lasted for a couple of years, double speed drives for one year, triple speeds for a mere six months, and affordable quad speed drives are just round the corner (or so they say). What the hell is going on with CD-ROM drive technology?

Just as we reach the stage where there is the quality and volume of software to make a CD-ROM drive an essential, the hardware keeps changing overnight.

If you run through a potted history of the CD-ROM drive you'll see what I mean about the rate of change regarding these machines.

The first PC CD-ROM drives affordable for the consumer (ie, you and me rather than big business) appeared back in 1990 when the Philips CM50 came out. It was distributed over here as the TechnoPlus Upgrade Kit. This was a single speed device, capable of limited transfer rates, but most importantly it broke the £400 price barrier.

It was immediately followed by similarly priced single speed drives from different manufacturers, as the chips became widely available and the CD hype machine lumbered into action.

For almost three years, the technology stayed constant. The affordable drives were all single speed drive (and then single speed, multi session, Photo CD, etc). Prices gradually dropped to a level that wouldn't cripple your average monthly pay check, and performance increased marginally.

But looking back, there was so little worthwhile software anyway that it's quite surprising that CD made it through the early years.

Anyway, technology did improve at the top end of the CD-ROM scale. But these were corporate machines. Nobody in their right mind buys an £800 CD-ROM drive for the home.

Then, in mid 1992, Mitsumi caused an almighty stir with its single speed LU005 drive. The key was the ridiculously low price — £149. A few pounds out and it wouldn't have made half the impact.

As it was — bizarre tray loading system and all — it sold incredibly well and forced price cuts throughout the CD hardware industry.

Early last year, the first sub-£300 double speed drives appeared, and the whole market was turned on its head (again). These drives boasted dramatically better performance than their predecessors, and an affordable price tag right from the off.

To cap that, in April 1993, Virgin's visually stunning, CD-only, 7th Guest appeared. This, the mass

"... Manufacturers panicking because they've got a lot of dual speed drives to ship,"  
Simon Duncan,  
Pioneer

availability of double speed drives, and the prospect of games publishers working to out do 7th Guest, effectively rendered the single speed drive obsolete overnight as a new purchase.

We've been buying double speed drives for over a year now, and just about every hardware manufacturer who can sling two chips and a motor together, now has their own or their own-badged double speed drive to sell you.

Prices have come down to around £150 for drives, from companies such as Mitsumi, Panasonic, Orchid and Sony. Technologically, double speed drives haven't changed much in the past year: access times and data transfer rates are pretty similar across the board.

And despite the explosion of CD-ROM games in the past six months, double speed drives haven't yet been outstripped by the latest software. They're cheap, widely available and they do the job.

Then six months ago, the launch of the triple speed NEC 3Xi raised the stakes once again. Partly because of the 'GTI', status symbol factor, NEC is selling the triple speed 3Xi hand over fist. No-one has come up with a triple speed drive to compete.

Most manufacturers say they plan to skip straight to quad speed and imply that it's going to happen very soon. In fact, they're available now if you want one. Expensive (£600), but available.

That brings us up to date on the CD front, and

The Philips CM50 was the first really affordable PC CD-ROM drive to hit the streets back in the dim and distant days of 1990.



here's the bottom line: do you buy a double speed drive, and accept that it could be obsolete overnight, buy a triple speed (and maybe find that quad speed drives are cheaper a week later), or wait for quad speed drives only to find that they don't actually materialise at an affordable price until you're ready to draw your pension?

### Is a double speed drive good enough right now?

Most manufacturers seem to think that it's more than enough for now (apart from NEC, unsurprisingly), and still offers the best combination of price and performance. Few believe that current software pushes it beyond its capabilities.

● Bob Clyde, UK manager, Mitsumi:

"Yes it is. Double speed meets the MPC2 spec, which is suitable for full motion ... well, video clips

### Rewriteable CD-ROM technology

Read and write CD has existed for some years now. You can buy a drive from Panasonic, for instance, at £2,600.

The problem with it (apart from the second mortgage you'll need) is that it's a write-once medium.

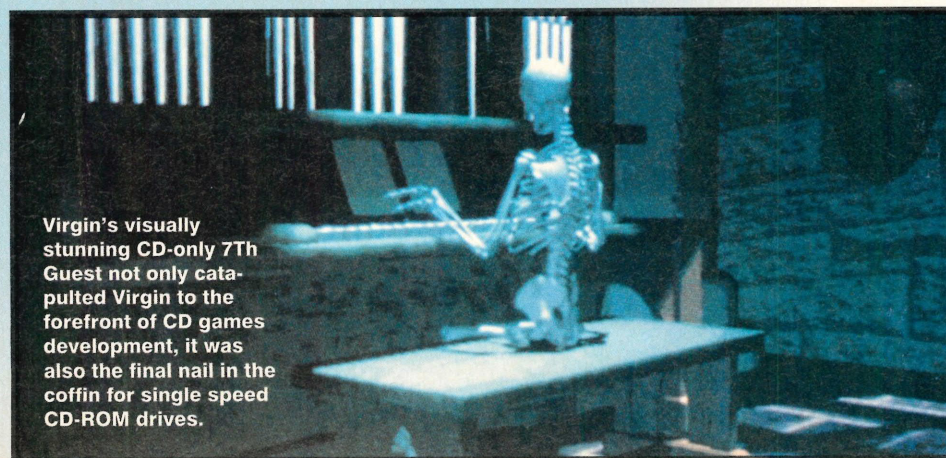
This makes the current technology interesting only to niche markets like Photo CD, and mass disc duplication. Both Philips and Kodak use it for special applications.

What about genuine rewriteable CD-ROM then? Well, to be honest, nobody's talking. In conversations with the industry the subject is conspicuously avoided.

The problem is with the discs, not the hardware. The linear way that information is stored on a CD means that seek times are too slow to make rewritable CD practical.

Unless you change the format of the disc itself — as with Sony's new MD Data mini discs — you're stuck with write-once CD for the foreseeable future. But the current format of the CD is one of the few constants across a variety of platforms, from audio CD, Amiga CD32, CD-i, Macintosh, 3DO ...

Rewriteable CD-ROM isn't an impossibility, but nobody seems in a great rush to turn it into the next data storage revolution.



Virgin's visually stunning CD-only 7th Guest not only catapulted Virgin to the forefront of CD games development, it was also the final nail in the coffin for single speed CD-ROM drives.



## Affordable CD — accelerated development



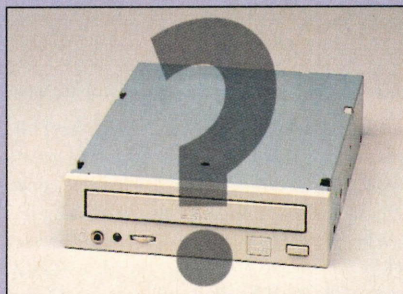
**Single speed (1990-93):** RIP. True, you can still pick them up in bargain bins here and there, but they just can't cut it with today's software. Avoid.



**Double speed (1993-94):** The current standard, capable of handling most software. Prices range from £99 to £400. Stay at the £99 end of the scale.



**Triple speed (1994):** Impressive performance and the vital 400kbp/s data rates, but relatively expensive (£299) and likely to remain a one-off as companies skip straight to quad speed.



**Quad speed (1994-?):** Available now and very, very fast indeed — unfortunately, way too pricey. Come Christmas that should change dramatically. Beyond quad speed lies ... eight speed?

at least. What full screen video really needs is an MPEG card, not necessarily a faster CD drive."

● Simon Duncan, marketing manager, Pioneer: "Given current software, double speed drives are fine for home use right now."

● Ian Skelton, technical marketing specialist, Creative Technology:

"Right now double speed is certainly the best option for games players — provided your PC is set up properly. The software out there doesn't need anything more as yet, although video does benefit considerably from faster drives."

### Will double speed be fast enough in six months?

This is where opinions are divided. Sure, anything that speeds up the data rates of the CD is nice to have, but is it worth waiting for or throwing away a double speed drive for? The main area that benefits from something faster than a double speed is full motion video — and realistically that needs MPEG compression as much as a faster CD.

● Bob Clyde, Mitsumi: "I have to admit, I don't know of any software that's really going to be shouting for quad speed drives, or even triple speed now or in six months time. There is a rumour that there's an

MPC3 spec in the pipeline which may help by laying down the specifications for high speed Cd-ROM drives."

● Richard Todd, marketing manager, Panasonic: "It depends on what you want to do. In terms of video, most software will probably use MPEG which really only needs double speed anyway."

"Some new games might need quad speed in terms of on-screen display, but with caching and a fast PC, a double speed drive is probably still going to be sufficient. Certainly the improved performance of a quad speed drive is not worth the extra money right now."

"On the other hand, looking at the way games and multimedia software is going the emphasis on video use is a concern."

The follow up to 7th Guest, Virgin's 11th Hour boasts the kind of heavyweight digitised footage that puts a real strain on current double speed CD-ROM drives.



● Nick Byatt, marketing manager, NEC:

"Double speed just isn't good enough for vision and sound to be synchronised properly. For that you need the 400kbp/s you only get with triple and quad speed drives. Our triple speed drive will keep up with the next two years' software, and that's all you'll need." (He would say that, wouldn't he? NEC has the only triple speed CD — Ed)

● Bob Johnson, sales manager, Orchid:

"The goal has to be the affordable 400m/s (then 600m/s) access times that we need for decent video on CD-ROM."

● Simon Duncan, Marketing Manager, Pioneer: "You're going to be disappointed in six months time, particularly with the increase in full motion video use. Right now there are manufacturers out there panicking because they've got a lot of dual speed drives to ship before then."

"Normally I would say don't wait (ie buy the available technology). But I just know that the cheap quad speed drives are going to happen very, very fast."

### When will we see the next generation of affordable drives?

Ah, the million dollar question ... and also the one where companies were always going to be deliberately evasive.

Manufacturers and distributors undoubtedly have large stockpiles of double speed drives to get rid of before they can afford to bring out cheap quad speed drives.

In other words, moving to quad speed too early could cost them a packet.

And also they don't want to hurt their double speed sales by making a premature announcement of cheap quad speed. Well, so long as they're happy of course ...

● Nick Byatt, NEC:

"Everyone's going to be doing internal quad speeds by Christmas, is my guess. Probably around the £300 mark for an internal drive, but in very limited stocks at first. We intend to be in this market first, too."

● Bob Clyde, Mitsumi:

"Price wise, the quad speed is expensive to produce ... there's no technical reason why we couldn't produce them, the crunch is the volume of expensive components. Actually, the current quad speeds are probably more sophisticated than

"Double speed isn't good enough for vision and sound to be synchronised properly."



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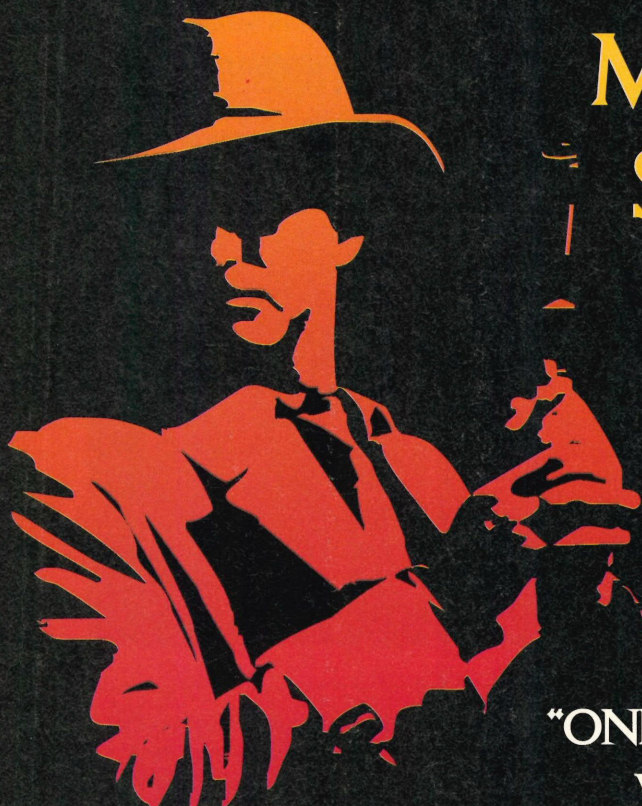
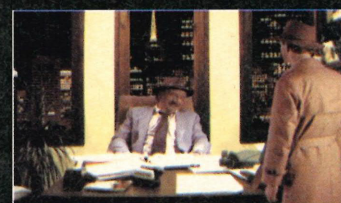
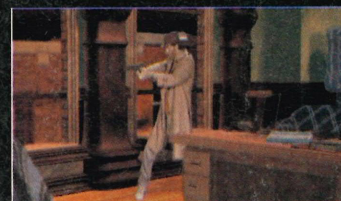
CD-ROM AND MULTIMEDIA NOW

"A STUNNING  
TECHNOLOGICAL  
ACHIEVEMENT"

PC REVIEW

"ONE THAT'S GOING TO BE  
WORTH WAITING FOR"

PC POWER

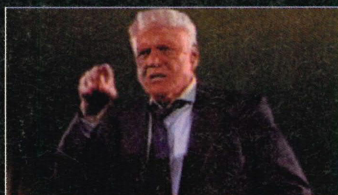


FEATURING...



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(THE LAST OF THE MOHICANS, NATURAL BORN KILLERS)



**BRIAN KEITH**

(PARENT TRAP, HARDCASTLE & MCCORMICK, YOUNG GUNS)

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those that'll be on the market next year. We have a quad speed drive under development.

"Whether it will make the end of the year I can't say, and no price range has been set."

● Damon Le Geit, marketing manager, Bluepoint:

"Our double speed drive is less than £100. We would like to do a quad speed drive for less than £300 as soon as possible, and we are working on that at the moment."

● Doug Murie, technical manager, Pioneer:

"We already have a quad speed drive for £549. Around Christmas time there will be companies looking to bring out cheap quad speed drives, and the Sony chipset is going to be available by the end of this year. But proper optical heads are needed to read the information properly and there are temperature problems to deal with at quad speed."

● Richard Todd, Panasonic

"I'd expect we'll release one towards the beginning of next year. Obviously the price needs to be much closer to current double speed prices."

### To buy or not to buy ...

I'd never recommend that you wait for a new piece of hardware that's due 'shortly', because even if it does arrive when it's supposed to (and that's a rarity) the next generation of hardware pops up on the horizon and says, "Wait for me, instead". You could end up waiting forever.

From what the CD-ROM industry have had to say, I think this still holds true — so my advice would be to stick with buying a double speed drive for the moment.

Why, with quad speeds maybe just round the corner, you ask? Firstly, none of the companies we spoke to could give us a concrete price and date on an affordable quad speed.

On top of that, there isn't any software out there that pushes a double speed to the limit yet — and it'll do the job for the foreseeable future. It's only the FMV stuff that will really push it eventually —

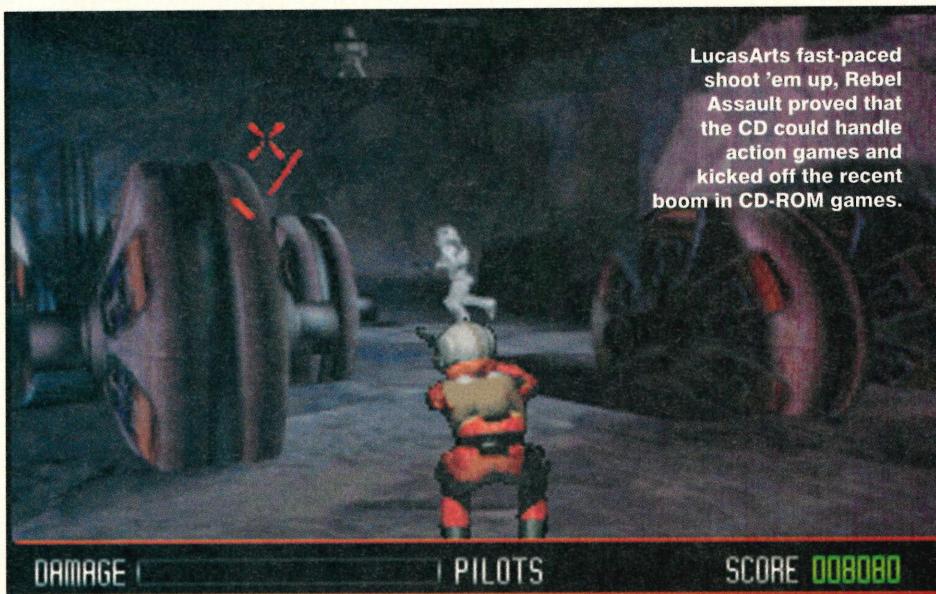
and by and large the CD games we've seen so far that major on video quality, forget to pack the gameplay anyway, so no great loss.

Just don't pay more than £150 for one. In fact, buy the cheapest double speed drive you can lay your hands on. Then treat it as having a useful life of nine to 12 months.

The triple speed is in an awkward position, and I think NEC is quite aware of this. For the time being, it's selling like hot cakes because it has no immediate rivals on the price/performance ladder. It's likely to remain a one off, though. The fact remains that it costs £300: quad speed drives at that price or less will kill it stone dead.

And there's no doubt in my mind that cheap quad speed drives are going to hit the shops around Christmas.

They may not have put a date or a price on the drive, but every manufacturer we spoke to admitted they were currently working on affordable quad speed technology for urgent release. There are no major technological reasons why they shouldn't materialise — only economic reasons.



## IDE CD-ROM TECHNOLOGY: AN OBVIOUS STEP?

Last issue we took a look at the ICD300, the first IDE-based CD-ROM drive to hit the UK market. An IDE drive is treated like an extra hard disk by the PC, and in fact connects to the same ribbon cable. Such a drive has several advantages: no extra interface card (so one less cable and easier installation), general sound card compatibility, no IRQs to mess up your life, theoretically faster data rates, and a lower price tag than your average double speed drive.

Sounds promising. So, is IDE the way forward?

Pioneer certainly doesn't think so. According to Doug Murie, technical manager at Pioneer, "IDE is a restricted interface, whereas SCSI is an open interface and the performance is a lot faster."

But it turns out that Pioneer is in the minority on this one. Most of the manufacturers I spoke to were prepared to admit, albeit guardedly, that they had IDE CD-ROM drives in the pipeline.

It seems IDE is likely to be next year's 'thing'. According to Nick Byatt, at NEC: "The IDE market is next year. The standard for ATAPI Enhanced IDE is still to be 100 per cent formalised. Come November (this year), standards will be concrete, and IDE drives will start to appear."

In the meantime, Bluepoint has stolen a march on the others with its ICD300, and argues that it has experienced no compatibility problems whatsoever because it uses its own IDE interface (and, having used the drive, I'm happy to go along with this).

However, the majority of manufacturers say they prefer to wait until

Enhanced IDE is commonplace on PCs. Now this is either because they don't happen to have the technology right now, or they're genuinely worried about the compatibility

issues. Take your pick ...

What may well happen is that Enhanced IDE CD-ROM drives won't appear in the high street until well after they start appearing as standard in new PCs with matching Enhanced IDE controller cards. According to Bob Clyde at Mitsumi, "We might see a change when Enhanced IDE controller cards are out in numbers. But it's more likely that you'll see the new IDE drives, quad speed drives, that is, on new PCs rather than available as upgrades."

Richard Todd, Panasonic's marketing manager confirmed this: "IDE drives will be primarily for system integrators [ie, ready installed in new PCs] until Enhanced IDE is in place. The add-on market will probably stay with the standard AT and SCSI drives."

If you do want one of these new drives (bar the ICD300, of course), you will have to wait until you can replace your old IDE controller card with the Enhanced version, then buy the matching drive.

Bluepoint's ICD300 CD-ROM drive is the first to exploit the use of IDE technology.







# CENTRAL INTELLIGENCE

IF YOU FAIL...

YOU NEVER

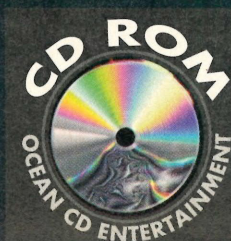
EXISTED

Utilising the massive storage capabilities of the CD ROM to construct complex and realistic scenarios, CENTRAL INTELLIGENCE is the ultimate test of your strategic skills.

In this CIA style mission you can operate in three areas - Propaganda, Military and Political to achieve your objectives. Choose your moves carefully... you could set off a chain reaction of events that may back-fire.

The theatre of operation is immense.

IF YOU'RE EXPOSED... WE NEVER KNEW YOU.

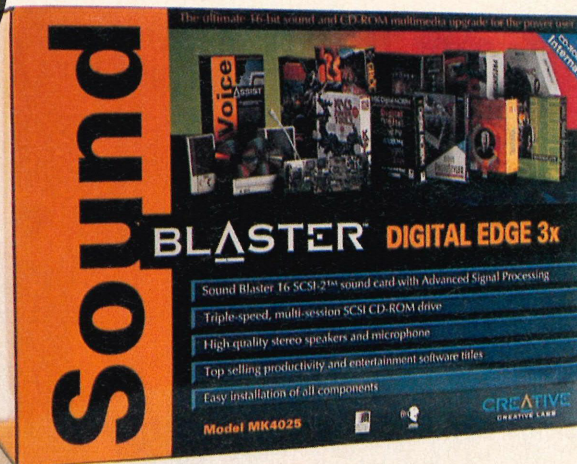


"Versatility and engrossing gameplay combine to make CENTRAL INTELLIGENCE a thoroughly enjoyable and challenging epic."

\*\*\*\* - PC PLAYER



# WIN!



**A Digital Edge\* multimedia upgrade kit:**  
complete with blistering triple speed internal CD-ROM drive and a  
state of the art Sound Blaster sound card.

# PLUS!



Three runners up prizes of Creative  
Labs ValuePack upgrade kits: with  
double speed CD-ROM drives and  
Sound Blaster 16 sound cards.

**W**hat PC is complete these days without all the multimedia trimmings? Without a sound card and a CD-ROM drive to bring your games to life? A top class card and drive to bring the most out of your multimedia software?

No PC, that's what! Which is why this month we're giving you the chance to take away the most desirable multimedia bundle money can buy.

Our first prize is the Digital Edge kit from Creative Technology. Now normally it features the ultra fast NEC triple speed internal CD-ROM drive and the classy 16-bit SB16 SCSI2 sound card. But for this

\* With AWE32 replacing the Sound Blaster 16 SCSI2 in this competition.

competition — and this competition only — it includes the state of the art Sound Blaster AWE32 wavetable sound card.

The triple speed CD-ROM drive has all the power you need to plough through the very latest monster CD-ROM games at a rate of knots. The AWE32 is not only a first rate games card with both wavetable and FM synthesis built-in, but for musicians it comes with CD-quality sampling and full MIDI support.

The three runners up prizes are Creative's hugely popular Multimedia Upgrade Kits: featuring the popular Sound Blaster 16 and a top quality double speed CD-ROM drive. Install these in your PC and you'll transform it from that dull grey box into a genuine multimedia showcase in one go!

## Competition rules

- Employees of EMAP Images, Intel, their families and associates are not eligible to enter this competition.
  - No multiple entries, please.
  - No entries received after the closing date will be accepted.
  - The editor's decision is final.
- Remember, if you want to enter more than one competition in each edition of PC Review, you can put your entries in one single envelope. Please mark clearly on the front of the envelope which competitions you enter.



## How to enter

If you want the chance to win one of these superb prizes, there are only three simple things you have to do. First, answer the three following questions (correctly!). Second, put your answers on the coupon below (or use a photocopy if you don't want to cut up the mag). Third, — and finally — send your coupon to the following address:

**PC Review  
Priory Court  
30-32 Farringdon Lane  
London EC1R 3AU:**

### THE ALL-IMPORTANT QUESTIONS...

1 The SB16 SCSI2 is a...?

- a) Small family car
- b) A species of carp
- c) 16-bit sound card

2 CD-ROM stands for?

- a) Compact disc — Root Out Memory
- b) Compact disc — Read Only Memory
- c) Carp disc — Randomly Obtuse Memory

3 Which one of these items would you *not* expect to find in a multimedia upgrade kit?

- a) A CD-ROM drive
- b) Fish
- c) A sound card

Your entry must arrive at Emap Tower's throbbingly busy offices by September 15th, 1994. This is (surprise, surprise) the closing date — and no entries arriving after this auspicious day will be accepted.

You have been warned.

*Please note: minimum hardware requirements for the competition prizes are as follows: A 25MHz 386 PC, 2Mb of RAM, one free 16-bit ISA slot, SCSI card and a free drive bay for the internal CD-ROM.*

### Digital Edge Competition

Name .....

Address .....

.....

.....

.....

#### Answers

1 .....

2 .....

3 .....

☐ Tick this box if you do not wish to receive further information from companies associated with this competition

Closing date: 15 September, 1994

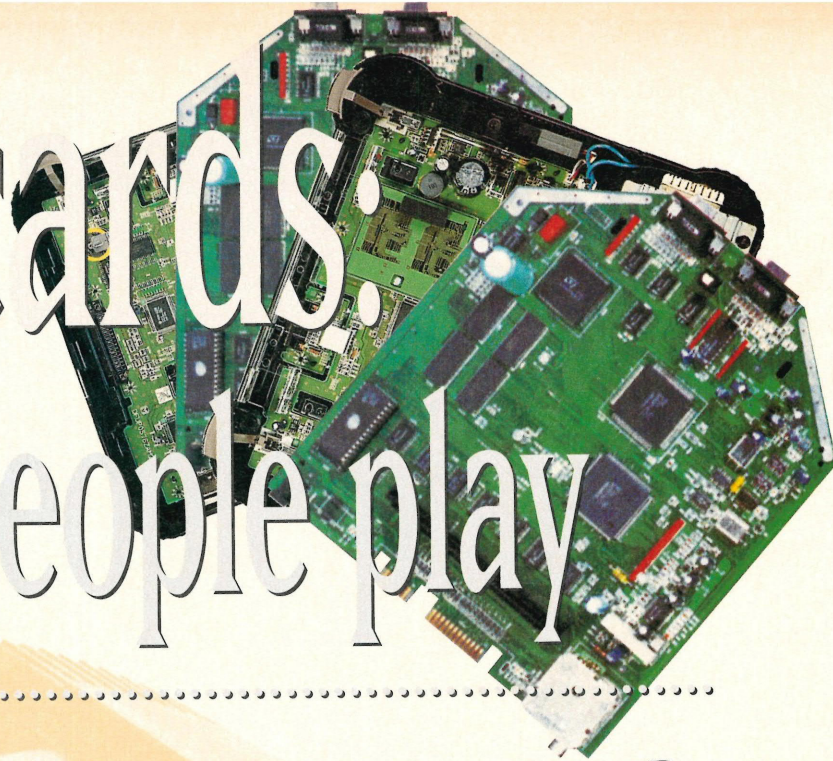
PC Review Issue 35 September 1994



TIME...



# Pack of cards: The games people play



How would like your PC to be able to play 3DO games? Or Jaguar, or CD-i games? It's entirely possible that you will be able to do just that in the near future, as Martin Klimes and John Bennett explain.

**T**he times, they are a-changing. Now that the PC has been adopted by the mass software market as the primary games platform, other hardware manufacturers have begun to take the idea of the PC as a games machine very seriously indeed.

On top of this, another revolution is coming: a new generation of consoles which are due to smash the image that only young children and American teenagers play computer games on a system that plugs into the TV and has no keyboard.

So does this mean we are going to see PCs become more like games machines? Or games machines become more like PCs? Quite possibly. For with the quality of games on consoles and PCs due to converge dramatically in the next year, it's hardly surprising to discover that console designers are looking to link the two: firstly by producing console titles for PC (licensing deals are already being set up to bring a large number of console titles to PC by the end of this year); and secondly, and much more interestingly, by introducing PC compatibility to their machines via the creation of dedicated games cards.

The three front runners in this latter race are Atari's Jaguar, Philips' CD-i and the 3DO card. But how do they work and what will the companies involved in this kind of development achieve by this silicon cross-fertilisation?

## THE JAGUAR: A CARD WITH BITE

The Atari Jaguar boasts 64-bit technology, with two custom chips called Tom and Jerry, and a sexy spaceship design. The Jaguar has a potential performance that could put many a coin-op machine to shame, and a retail price of only £225, making it a real eyebrow-raiser among the consoles.

That fact alone is enough to get the big names furiously designing software for it, and should

make it a valuable addition to the PC when the Jaguar-to-PC card is made. The decision to license the Jag to Sigma Design was only made in May, but release is planned for as early as the end of the year. Since it's the only console of the three that's actually on the streets over here, they may actually be able to achieve this deadline.

## The card — one up on the console

The card will combine the Atari chipset (presumably including all those major cartoon characters) and Sigma's ReelMagic full motion video system, making for a double whammy of games power. All Jaguar CD titles will play on your CD-Rom drive (there should be 50 by Christmas), as well as existing ReelMagic software (of which there should be about 90 titles by then).

Then, from next year, there will be the dedicated software making the most of both the ReelMagic's MPEG technology and the Jag's real-time 3D graphics abilities. MPEG (Moving Picture Experts Group) offers full motion video at full screen size with CD quality sound, while the Atari chips can move a staggering 850 million pixels per second. Count them, 850 million!

The card will connect up to your graphics card using a feature connector and will have full drivers for DOS and Windows. Output will go to a resizable screen window and, although games to date haven't been anything special, with the likes of Tempest 2000 and the up-coming Alien vs





Predator, you'll probably want to keep this window at as large a size as you possibly can.

Other products that could be on their way to your computer soon are Crescent Galaxy, a visual masterpiece of a shoot 'em up, and Chequered Flag 2, which could just be better than Virtua Racing, one of the fastest games in the arcades at the moment.

#### Added bonus

On top of all this it has been speculated that the Jag will run DV movies using a special cartridge.

The Jaguar card will retail in the United States at less than \$500, although no UK price has been

established. At current exchange rates, though, that's about the same as a fully tooled up Jaguar console with CD-Rom module would come to. Presumably the theory is that although with the card you don't have the CD-Rom in the package, you do have the ReelMagic capability that means some of the software coming out for the Jag will be far better on PC than through the console.

I'm not totally convinced on that score, but if enough PC games manufacturers like LucasArts and Microprose decide to take it up, it might just end up being the case. Certainly, the console has the highest spec of any of the new generation, and the lowest price. If the card lives up to that, then it will be worth keeping an eye out for.

### Jaguar: specification

Processor	64-bit at 13.3 MHz
Max resolution	720x576
Colours available	16.7 million
Price	£225
(with an extra £150 for the CD drive)	

### ATARI JAGUAR

But is there any software on the Jaguar that you, a PC owner, might be interested in? Well, there's this little lot, for a start.

**ALIEN VS PREDATOR** Rebellion  
Doom, hah, eat your heart out! Two old friends get together in this gloriously violent high resolution carnage-fest.

**CHECKERED FLAG 2** Rebellion  
Rebellion's answer to Virtua Racing. Slick and very fast.

**KASUMI NINJA** Atari  
If you haven't had enough of ninja ants, already, then try this beat 'em up. Top marks for the violence quota, anyway.

**TEMPEST 2000** Atari  
Classic arcade clunker gets a stunning revamp in true 64-bit glory.

### REELMAGIC TITLES

**RETURN TO ZORK** Activision  
High resolution version of Activision's tough adventure complete with totally OTT American acting.

**PSYCHOTRON** The Multimedia Store  
Superb 3D rendered graphics set this one apart from your average 'save the world from destruction' game.

**PUMPKIN HEAD** Motion Picture Corp  
Combines 60 minutes of full-motion video taken straight from that delightful movie, Pumpkin Head 2, with arcade and shoot 'em up action.

**FLASH TRAFFIC** Tsunami  
Jim Walls — creator of the Police Quest series — takes you on a digitised Chandler-esque murder mystery that turns into a fiendish plot to rule the world.

**INTERACTIVE** Graphix Zone  
AFKAP (Artist Formerly Known As Prince) applies his not-inconsiderable talents to this interesting, interactive full-motion video adventure.

### CD-I: THE OLDEST NEW CARD EVER

CD-i from Philips has actually been around since 1991, but its growth and acceptance in the market has been slow but steady. Up until now, CD-i (Compact Disc Interactive) players have been large black boxes resembling video recorders. This autumn, however, Philips is due to launch the CD-i 450, a console lookalike which will come either on its own at around £300, or bundled with a digital video (DV) cartridge for £450.

What this means is that its technology may look a little old compared to its two competitors. However, it's no slouch either, and scores brownie points for other things. CD-i, you see, is being touted (by Philips, of course) as the future of home entertainment, no less.

The theory goes something like this: Philips developed CD-i to be compatible with normal audio CDs, (which incidentally it also pioneered), so you can play any of your compact discs on a CD-i machine. You can also, and this is the good part, fit films on CD using new DV technology, so that the Philips' brave new world would have CDs instead of videos for rent at Blockbuster. It'll be the death of VHS, just as CD killed records, because you'll never lose quality no matter how many times you watch Casablanca.

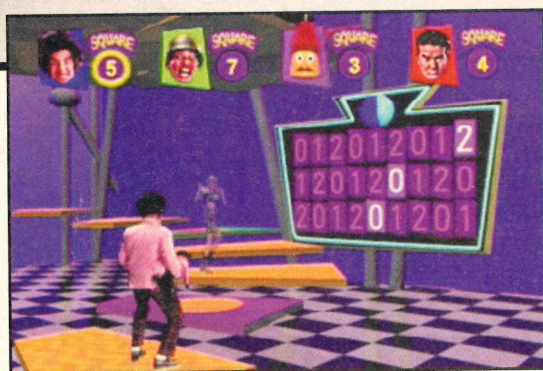
There are well over a hundred titles available on CD-i now. And a very diverse bunch they are too.

Paramount is only one of several big studios



IS TICKING AWAY...





### Bringing games support to the PC

On top of all this, there's the games side. Slow to begin with, the folks at Philips have recently been putting a great deal of effort into getting CD-i games written. Virgin Interactive and Interplay are two big names who have already signed up, and you can expect more to follow. It's just a question of how long that will take.

already making DV films, including hits like Patriot Games and Star Trek VI. There are also specials in the pipeline, including a three-part CD-i set of Monty Python collector discs containing rare footage, a game, and a karaoke disc of all the old favourites. Bizarre but true.

The Paramount deal, which didn't come cheap to Philips, is indicative of the financial commitment that's being put into the whole CD-i phenomenon. As a direct result, owners of the CD-i card are promised by Philips movie games of Star Wars and Jurassic Park among others. Trekkies needn't feel left out, because the crew of the starship Enterprise are also on the list of properties for the CD-i treatment.

Back catalogue movies are another lucrative field that Philips is going at hammer and thongs. Expect to see Wayne and Garth on a CD-i player near you soon, together with such cinema legends as Rocky and James Bond. Although these are straight conversions to the format of released films, the technology also lends itself to innovation in movie-making itself.

As an example of this, you only need to look at Thunder in Paradise, a muscle-bound extravaganza starring Hulk Hogan and produced by the people behind the ludicrously successful Baywatch.

Philips has installed a second camera crew on set, filming alternative scenes for the interactive movie game. If, like us, you get a nasty shiver down your spine every time someone mentions that phrase, this may be just the thing to give it a modicum of respectability. It's a very different kettle of fish than the majority of efforts created especially for our monitors at the moment.

Philips claim that it will sell about a million CD-i players next year, and another million the year after. Whether this is a tad optimistic, only time will tell, but it has certainly put a lot of time and money into the system. Look out for the £6 million ad campaign in the run up to Christmas.

So, as part of this massive drive for global conquest of the home entertainment market, someone in marketing looked at computers, realised that there are 10 million CD-Rom owners out there, and figured they could plug CD-i into that network. Ten million users, and all they need to do is put a card into their PC and hook it up to their existing drive. And *voilà* — instantly you can play movies on your computer, and have access to all the games that are planned.

Indeed, Philips is already making use of the PC CD-ROM installed base, making its first moves into the software side. L'il Divil, Hanna-Barbera's Cartoon Carnival, International Tennis Open and Time-Life Astrology are just of the titles lined up by Philips in its bid to become a "multi-platform publisher". David McElhatten, Philips Media Games' president says this "is the next logical step for our business."

The travel in software is two-way, however, with an increasing number of CD-ROM games making the trip to CD-i. Apart from Virgin and Interplay, both Psygnosis and US Gold are getting in on the act. Take a random smattering and you get Seventh Guest, Creature Shock and Lost Eden, as well as L'il Divil (again) and Time-Life Astrology (again). Games, education, and reference — they are all represented in the CD-i brochure.

### PHILIPS CD-I

The CD-i games canon may be small, but how perfectly formed is it? The following are probably the most desirable CD-i items.

**INTERNATIONAL TENNIS OPEN** Philips  
Tennis at its photo-realistic best.

**BURN CYCLE** Philips  
A mixture of movie and fast action video game, with a cyberpunk theme.

**ELEVENTH HOUR** Virgin  
7th Guest ran like a full-motion video dream compared to the PC equivalent and this sequel promises more of the same.

**THUNDER IN PARADISE** Philips  
Unique interactive version of the TV show of the same name. Your mission is to track down a mad scientist and a cyborg who've kidnapped a young girl. Coming early 1995.

**MAD DOG MCCREE** Philips  
Popular arcade conversion, that includes all the fun of a shooting gallery, a spot of storyline, and as much full motion video as you could wish for.

**NFL HALL OF FAME** Philips  
Create your dream team from the Pro Football Hall of Fame, and compete in one or two player arcade football action.

**VOYEUR** Philips  
An interactive cartoon, Voyeur is definitely for adults-only. Wade through the copious helpings of 'lust, betrayal and revenge' in this political whodunnit.

**MONTY PYTHON**  
Three Cd-i set to tie with the 25th Anniversary of the cult comedy series. One disc is film clips, disc two is a sing-along-a-Python job, and disc three is a game based heavily on Terry Gilliam's cartoons.

CD-i card owners won't be limited to conversions (or parallel developments) of PC CD-ROM titles, either. After all, there wouldn't be much point buying the card if you could get the games anyway. Philips Media games division have been busy off their own bat. Dedicated CD-i games include Burn:Cycle, a twisting plot-lined future thriller and Mutant Rampage, a post-apocalyptic street fighter game (see below for further details).

On the education side, the family education division includes among its products Crayon Factory, a trip through an environmentally-friendly, um, crayon factory. Children get the chance to mess around with all sorts of functions in the building, and there's plenty of colouring to boot, of course. And if interest in mess-free electronic colouring books flags, there's always Max Magic's Electronic Magic Kit to try (once again, more details below).

### Where this leaves us

Whether or not CD-i will disappear up its own sleeve, though, will very much depend on the quality of these products. For fans of the Budweiser commercials, the 'Downhome Blues and Uptown Blues' collection may seem like a dream come true, but as we've learnt on the PC itself, the best sounding ideas often come off very differently to expectation. We'll have to wait and see what developers make of the potential of the hardware.

The Philips CD-i card should be ready to plug into your computer in the first quarter of 1995, and another major multi-national card manufac-

"Someone in marketing realised there were 10 million CD-Rom owners and they could plug into that network."



turer is allegedly due to announce that it will make a CD-i card for release at about the same time. Until then, prices are being kept very much under the Philips' corporate hat, as are precise technical specifications.

When it arrives, Philips will have the advantage with its system that it has the potential for feature length movies, CD music, and computer software all in one system. It's really a matter of what Philips make of all this possible potential that will seal its fate or secure its fame.

### CD-i: specification

<b>Processor</b>	<b>32-bit at 12.5 MHz</b>
<b>Max resolution</b>	<b>320x200</b>
<b>Colours available</b>	<b>16.7 million</b>
<b>Price</b>	<b>£300-£450</b>

### 3DO: THE FUTURE ADD-ON CARD

Creative Technology, the Sound Blaster people, has struck a deal with 3DO to produce a version of the 3DO console for the PC. It's scheduled to appear early next year, and to cost in the region of £300 (as with the 3DO console itself, pricing is still a sensitive issue).

So, what is 3DO when it's at home, and why does the PC need an add-on for it anyway? 3DO is a home entertainment console system developed by the 3DO company, backed by the likes of Electronic Arts, AT&T, Panasonic, Matsushita, Time Warner and MCA, and intended for (promises, promises ...) an October launch in the UK. The name 3DO is derived from "audio, video ..." which encapsulates both its 3D and its multimedia capabilities.

It's an undeniably powerful CD-based system. Features include a 32-bit RISC processor, streamlined architecture and advanced direct memory access (for improved performance), plus specialist graphics chips and routines for high speed movement, polygon generation and texture-mapping.

Oh, and that's not forgetting the 16-bit stereo sound capabilities, as well.

In many ways the biggest difference between 3DO and the other console formats (apart from the £500 price tag) is in the way that the 3DO company intends to market it. The idea is that unlike, say, a Sega or Nintendo system, or the Atari Jaguar come to that, you aren't buying into a specific item of hardware, but an entertainment standard — a generic entertainment hardware platform sold by a number of high-street names.

The closest analogy is, I suppose, the way we buy video recorders: buying the brand name as much as the technology and features. 3DO already has 12 hardware companies lined up for this purpose, including Panasonic, obviously, and the likes of Amstrad amongst others.

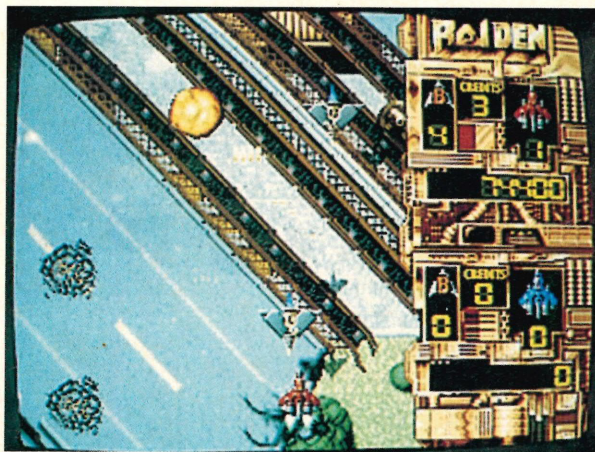
### The games machine

So, there's plenty of clout behind 3DO, and it is an impressively specified piece of hardware.

Still, it hasn't had too easy a ride so far — particularly back in the early pre-launch days when demo machines turned out to be nothing but half-empty boxes powered by Mac Quadras.

Most of the arguments have centred around the pricing and the positioning of the system in the home. 3DO maintains that there is a demand for a versatile home entertainment system — as opposed to the teenage-oriented consoles — and that the PC doesn't fulfil this need because its place is in the study rather than the living room.

But if that's the case, why announce a 3DO PC add-on? Purely as a matter of choice apparently. If — and it's still a big 'if' — 3DO takes off as a console format, the range of dedicated 3DO software will mushroom. People buy hardware because of



DARE YOU  
WAIT UNTIL  
THE 11<sup>TH</sup>  
HOUR?



## 3DO

So what does the 3DO have in the way of wonder-games that you can't already play just as well on your PC?

### ROAD RASH

Electronic Arts

Fast-paced motorbike road racing game in which you can ram rival bikers into the walls or run over grannies.

### FIFA INTERNATIONAL SOCCER

EA

Yes, it's already available on PC, but this is supposed to be the definitive version, with superb, updated graphics, seven camera angles and crowd sound sampled from the 1990 World Cup.

### OFF-WORLD INTERCEPTOR

EA

Graphically superb off-road racing game in which you chase criminals across many different types of planetary terrains whilst trying to evade the cops.

### TWISTED

EA

Take part in a wacky gameshow, which incorporates solving puzzles and being subjected to some very weird humour.

### CRASH 'N' BURN

EA

The game originally bundled with the 3DO, Crash 'n' Burn is a good-looking, texture mapped, racing game from the team which produced Off-World Interceptor (above).

### NIGHT TRAP

EA

Spoof 50s-style interactive movie with full motion video. Controversial for scenes where vampires attack scantily-clad teenagers.

### ESCAPE FROM MONSTER MANOR

EA

Doom-style game set in a haunted house complete with ghosts and other monsters.

### JOHN MADDEN FOOTBALL

EA

Classic gridiron game redesigned to take advantage of 3DO's unique technology. Features full motion video and instant replay/slow motion controls.

### JURASSIC PARK INTERACTIVE

OCEAN

Yet another version of Spielberg's dinosaur movie. Includes problems solving plus the obligatory Doom-style 3D escape in the Raptors section.

the software that shows it to best advantage (the killer application, as it's known) so if PC owners see all these brilliant new games appearing for the 3DO, they'll want a piece of the action. That's the theory, and hence the add-on.

So, what brilliant new games are we going to get that will make this add-on worth waiting for? Well, as ever with new hardware, there are a lot of enhanced conversions of existing games being turned out: games like Road Rash and PGA Tour Golf. There are some games that do genuinely show the potential of the system, like John Madden Football, Creature Shock and Shock Wave, for example. 3DO FIFA Soccer is simply superb, as well. Of all the incarnations of FIFA across all the games machines, the 3DO version is undoubtedly the most impressive.

Or there's Twisted, a very bizarre game show

format with some stunning digitised sequences. Unfortunately, underneath all the razzmatazz there's little more than basic puzzle gameplay (full of sound and fury, and all that ...)

## The PC and 3DO

So okay, the main console isn't even in the shops yet and already they're announcing the PC add-on (seems a bit like christening the baby the day before the wedding, but anyway).

3DO on the PC will come in the form of a double speed CD-ROM drive and an internal full-sized card, containing all the specialist graphics and games chips, and then all powered up by the 32-bit RISC processor.

CD is the key once again, the common element between the two formats. One thing that 3DO is keen to point out is that the drive supplied will be upgradeable (as is the 3DO hardware itself), so you will be able to replace it with improved PC drives as they become available. Whether you will be able to buy just the card, then use your existing CD-ROM is a different matter. It has nothing to do with technical problems, it's a marketing matter. Similarly, it has not been announced whether you will be able to use the 3DO sound capabilities for your ordinary PC games.

In the short term, whether the 3DO makes it to the PC at all will depend on how well the whole system sells this Christmas.

If it gets sufficient momentum, the potential games power should be enough to see attractive, original 3DO games on the shelves in numbers by the time the PC version is available and comes out. In that case it will be worth more than a passing look to any PC games player — and you won't have to pay £500 for the privilege.

## 3DO: specification

Processor	32-bit at 15.5 MHz
Max resolution	786x560
Colours available	16.7 million
Price	£450

## It's a wrap

As the year goes on, we approach the showdown between the new formats, not only in the console market but also on our computer screens. Consoles can no longer be looked at as the 'little kids' market that was cornered by Atari at the opening of the 1980s and then subsequently stormed by Sega and Nintendo a decade later.

The technology, as witnessed first by the likes of the Starwing cartridge with its accelerator chip, has now got to such a stage, that games can move from the fast-moving sprite based platform action we used to see not so very long ago, to more the sort of game that the PC is known for. Strategy games, graphic adventures and flight sims are all around the corner. Not that Sonic the Hedgehog is likely to die out completely, but there should be a far better mix of products available on the new generation of consoles.

All of which means that the PC will have more games being designed for it, thanks to cards like the ones above, and healthy competition is no bad thing for us, the end customer.

The question really is, with several formats on the market, all at a premium price, which will survive to give you a good run of well supported products and which will fizzle out before it really gets going? Looking into crystal balls is a mugs game with new technology. Better is not always successful. Just think back to the Betamax video, a superior system to VHS, but ultimately beaten into the ground in the marketing wars.

Therefore, before investing in any one of the incompatible standards, common wisdom would dictate caution.

A few months wait to see the end of the shake-out in the formats will help assure your hard-earned cash is money well spent. Alternatively, it is equally possible that despite all the hype and bluster from the companies involved, there will not be a suitable response from quality games designers in any of the systems to warrant buying one of the cards at all.

We watch and wait with bated breath, eager to see where this particular technology race is leading for us, the PC user.

## Not playing the game



While Philips, Atari and the 3DO corporation go hell bent for leather to woo the PC crowd, big players Sega and Nintendo have been notoriously aloof about the whole thing.

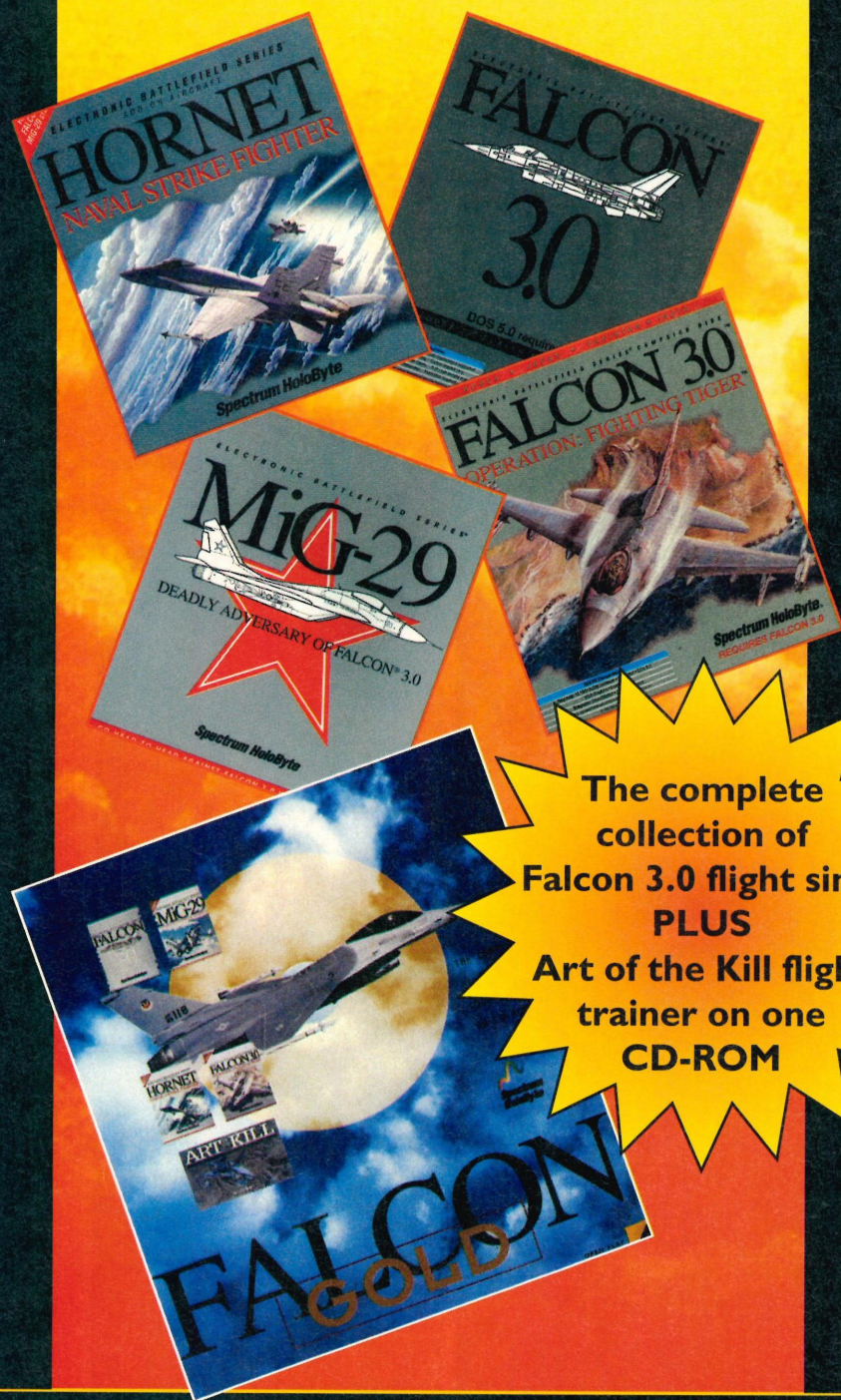
Andrew Wright, software products marketing manager at Sega laid his company's philosophy on the line, "We have no plans to produce a hardware card to run Sega games on the PC. Instead we've got an in-house publishing team doing conversions of the software directly."

Nintendo is planning a new stage in console hardware itself — a project so far called Ultra 64. Due in late 1995, it will be a 64-bit console that runs games as good as any you'd find in an arcade. A long way off from the old 8-bit ugly boxes that sold by the million not so very long ago. However, the games will still be cartridge only, not CD-ROM, and this is likely to be the barrier to us PC users playing their games directly.





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S I M U L A T I O N

**MICROPROSE**



# Living with Windows 4

Last month we introduced Windows 4, otherwise known as Chicago, Microsoft's new, all-singing, all-dancing, graphic user interface which could protect you from the DOS prompt forever. But will it work with all your DOS-based games? Mike James tests out his favourite games, past and present, with the new version of Windows.

It's one of only 20 test copies of Chicago, aka Windows 4, in the UK. I've just spent a week or more testing it with a variety of Windows software, but now it's the weekend. What do you think I should do? How about find out how it works with some well-known games, which are likely to be in many people's collections, and a few new ones? Is it going to be fun? Or foul? Saturday morning and Chicago is up and running on a 486DX-33 with a CD-ROM that it doesn't really understand and an

absolutely 100% Sound Blaster compatible card — that's because it is a Sound Blaster. At this point I'm not sure if I expect anything to work at all. I certainly expect to struggle a lot to make anything that does eventually work, work.

In Windows terms, games are notoriously badly behaved because they expect to have all of the memory to themselves, all of the graphics facilities — well basically all of the machine. They don't co-exist with other software at all well and co-existence is what Windows

is all about. I don't even try to run games under Windows 3.1, there just isn't any point. It is obvious from the word go that even if there are no direct conflicts between the game and Windows, then it is almost certain that there will not be enough conventional memory in a DOS session.

So what makes me even contemplate trying to run such aggressive DOS applications on Chicago? There are a number of reasons. Firstly, Microsoft is making a lot of fuss about the fact that it has managed to get Doom running — as if this was some sort of proof that anything will work. Secondly, the new version of DOS that Chicago is based on is supposed to give you more conventional memory than ever before. And finally, Chicago starts up straight into Windows without ever giving you a moment to think about old DOS and the good times you've had together. All of this invites users to attempt to run all DOS software, including games, in a DOS session and this means you in couple of months' time.

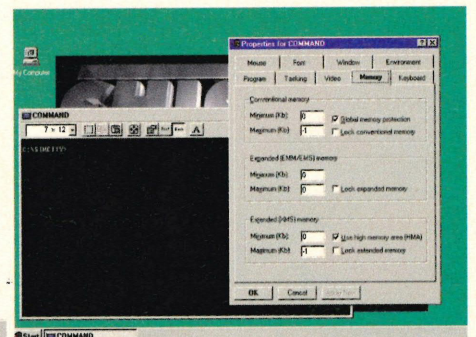
The first game I tried to install was Gunship 2000 — I'm a sucker for flight sims of all kinds. This seemed like a good place to start for other reasons though: it uses VGA graphics, needs lots of memory and if there is enough memory, it uses digitised sound. If this works there is a good chance that the others will. Installing it was simple enough — just open an MS-DOS session and proceed as if

everything was normal. Next run the program from a DOS session. You can modify the DOS environment to suit the program that you are trying to run — I will explain how later — but for now I just wanted to see if Gunship could cope with the defaults. It did! A few minutes later I was through the mission briefing and taking off.

The sound was good, the graphics were fine and the two were synchronised.

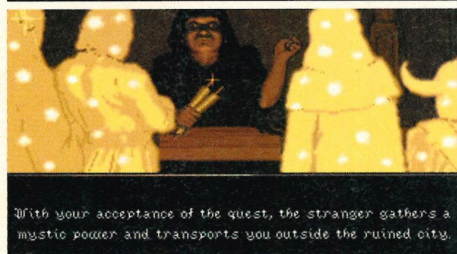
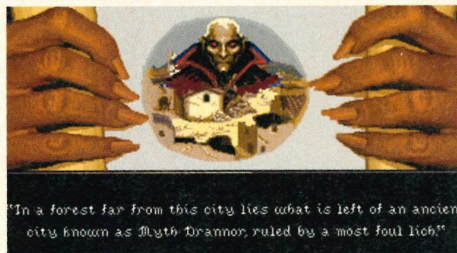
**Below: What a DOS program needs and how it behaves.**

**Bottom: X-Wing runs in a resizable window.**



"Chicago starts up straight into Windows, without ever giving you a moment to think about DOS."





This will seem more of a shock when I tell you that all this was happening in a resizable window. Yes, that's right I could switch away from Gunship 2000 and use another application and it still carried on in its own little window. Don't misunderstand me. I'm certainly not suggesting that you actually would want to play Gunship 2000 in a small window — it isn't responsive enough. The point is that it gives you some idea of how good the MS-DOS support is in Chicago.

With one success in the bag, I pressed on with a lot more enthusiasm to X-Wing next. All I can add is that it ran just as well as Gunship and I was in a deep state of shock. I had to find something to throw at it that was more difficult. So I took Theme Park down off the shelf — because it uses the DOS/4GW extender. DOS/4GW is a sort of add-on to MS-DOS that allows standard DOS programs to access extended memory, ie, the sort of memory that they usually cannot get at.

This is a great idea and DOS/4GW is used by an increasing number of games to solve the memory shortage problem. However, DOS/4GW does make use of the machine in a way that MS-DOS,

**Above: The Eye of the Beholders (I and III pictured) all ran perfectly, including the sound. Below: Gunship 2000 running in a resizable window.**



and in this case Chicago, doesn't really expect a DOS program to be capable of. DOS/4GW plays by the rules though and in principle Chicago should be able to deal with it — it didn't.

This was my first problem case, and it wasn't simple. Sometimes the game would run just fine. Other times it just refused to start, dropped back to the MS-DOS prompt, or complained

about a missing line in the System.init file. Nothing I did seemed to make it work, although there are still options I could have tried. The conclusion is that it might be possible, with the right tweaks, to make Theme Park and other DOS/4GW games run under Chicago, but at the moment the combination has to be treated with suspicion.

After this partial failure I moved on to the Eye of the Beholder Trilogy. Adventure games in general should be easier to run because they tend not to go in for the fancy graphics modes. In this case I was relieved to find that they all worked perfectly, including the sound!

### Two into one won't go

Next I got a little more adventurous — I decided to see what would happen if I ran two games at the same time. In principle, this would have been possible if I'd switched off the use of the Sound Blaster card on one of the games — so far no one has found a way of letting two programs use a sound card at the same time. But I didn't, and so the second game hung while I closed the first one down. I say "hung", but programs don't really hang in Chicago because you can always close them down by using a "local reboot". This effectively cleans up the mess left by any crashed program and lets you carry on as before. To its credit the second program did carry on from where it left off as soon as the Sound Blaster became free.

Other programs that I tried were Kings Quest V, Leisure Suit Larry 5, Great Courts 2, Sargon 5 and Shanghai 2. They all worked, but Red Baron wouldn't run because I was trying to run it from CD-ROM and it ran out of conventional memory. It is still possible to not have enough conventional memory — but only if you are unlucky enough to be using a strange device. Remember the CD-ROM drive that I said Chicago didn't really understand. Well, this caused me some problems over the weekend. The reason is that fully supported devices have special 32-bit device drivers and these can be moved out of the MS-DOS environment. If you don't have a special Chicago driver for the

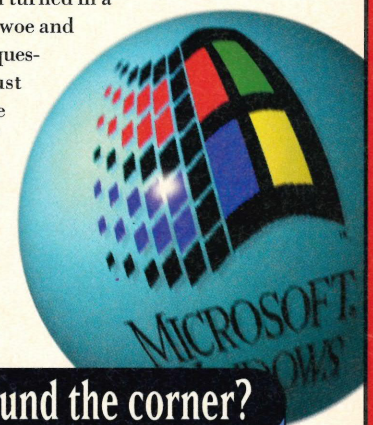
device then you have to load the old 'real mode' driver. This puts it into the conventional memory area, so causing a memory problem. Most CD-ROM drives, but not the one I was using, are recognised by Chicago and so there is no loss of memory. Presumably this sort of problem will be sorted out by the time Chicago is a finished product. But I spent hours trying to configure the memory for Red Baron. It was like old times and more of a challenge than any of the games that just worked!

On the subject of memory management, while it is true that Chicago does away with many of the horrors of the DOS problem, you can still set up applications to have different amounts of XMS or EMS memory available. You do this by filling in an on screen form that appears when you click with the right mouse button on the programs icon.

### A piffling matter

If you ever got deep into Windows 3 you will recognise many of these options as being something to do with PIF (Program Information Files). You would be right. PIF files are still there, but now stored in their own directory and hidden away from innocent eyes. The really good thing about this arrangement is that you can ask for expanded memory or XMS extended memory 'on the fly' in the sense that you don't have to restart the entire machine for the new settings to take effect.

At the end of the weekend I am pleasantly surprised at the way games transferred across to Chicago. It didn't go entirely without trouble and I'll remember the struggle I had with memory management for a long time to come. But I will also remember the delight at seeing a flight sim running in a window — it may not be practical but it was impressive. I've no doubt that I could have chosen a different set of games, or perhaps a different PC configuration and turned in a tale of unrelieved woe and despair. The real question is, was I just lucky? Only the coming weeks of working with Chicago will tell as I try out my entire collection of games and applications on the new system.



## Is DOS really dead — or is DOS 7 just around the corner?

Chicago is very definitely still built on MS-DOS. It may be a new version that works in 32-bit protected mode, ie, it should be faster and gets itself out of the way of applications, but it is still recognisably MS-DOS. When you boot Chicago up you see an opening graphics screen which takes you straight to Chicago without any sight of the Config.sys and Autoexec.bat files being processed. In reality this is just a front. Both set-up files are processed in the usual way and drivers loaded exactly as before. You can even interrupt the process and drop into a non-GUI command line prompt environment. This announces itself to be Chicago 4.0 but in fact it is MS-DOS version 7. Microsoft has been debating whether or not to release DOS 7 as a separate upgrade or not. Currently it looks as if it will produce an MS-DOS 7 soon after Chicago ships, but it adds that it doesn't really see any reason why anyone would want to buy it!





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it's not often I thank someone  
for a nightmare."*

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Packard Bell  
PC feature

# Technicolour PCs ...

Packard Bell's new range of home PCs come complete with everything from TV, radio, and MPEG video, to a range of detachable colour panels. John Bennett asks whether PC manufacturers have finally cottoned on to what we really want in a home PC, or is it a gimmick?

**P**ackard Bell has a whopping slice of the home PC market. You'd be hard pushed not to have seen its PCs in the high street at some time or other. But now, the company has decided to produce a PC that is really geared for the home user — one that is not just a revamped office job with a fancy name.

Yes, well, we've heard that before. Some of Amstrad's less conspicuous successes, or the ill-fated Acer PAC 450, spring to mind. But to be fair, the new Spectria multimedia range (due to start selling in September) does have quite a lot going for it — on paper, at least.

## Hardware heavies

For a start, it is actually quite a stylish looking PC, and although a little cramped internally, it makes use of all the latest technology (ZIF socket, easily upgradable RAM, PCI Local Bus, etc).

All the Spectria machines have a double speed CD-ROM drive (a Sony) and 16-bit wavetable sound card (an Aztech) as standard — starting with the entry level 33MHz 486SX at £850 (excluding vat) up to Pentium speed machines.

Beyond that, the idea is that you will be able to select a configuration that suits your needs — not so much in terms of sheer performance, but in extra, consumer-oriented features. Options like a built in TV and video card (by Reveal), an MPEG card (unspecified as yet) for full motion video games and CD-i movies, a stereo radio, answerphone, fax and modem will all feature in the Spectria range, without pushing the price through the roof, so we're told.

There is even a range of rather classy hi-performance speakers, to boot, although it has to be said that the optional, three feet high 280 watt satellite/super woofers do look like traffic bollards.

Add to that little lot a range of 27 software titles with the Spectria, and you're looking at a very good bundle indeed.

## User friendly

OK, so plenty of the kind of features we'd all like to have, but what about ease of use? Well, in this respect the Spectria has some neat tricks up its sil-

icon sleeve. Common sense things (or common sense to you and me, but not to most PC manufacturers) like colour coded cables and sockets make life a bit easier, as does having the internals on a simple, slide-out tray system.

Most important is the Navigator front end and tutorial system. This has been given the full multimedia treatment to make it as friendly and accessible as possible — in fact the main graphics reminded me of *Myst* (reviewed in Issue 32). It works, it is undoubtedly going to be very handy for new PC users — and the only drawback is that it drags on the system a bit.

## Child's play

One interesting point about Navigator: it has an area called KidSpace, which is (hardly surprisingly) an easy and fun way for kids to customise a part of the PC for themselves. What worries me about this is that the kids can password-protect applications and data from within KidSpace. Now, not only does this raise questions about respon-

sible parental supervision, computer porn and all that, but it could cause all sorts of other problems, too. Remember the TV advert where the kid has buried his dad's car — "It's in the sand. I'm not helping much, am I Dad?" What happens when you find that one of your little darlings has password protected your programs and then conveniently forgotten the password?

OK, an experienced user would be able to hack round that, but for a PC aimed at first time PC users and families, it's a worrying feature.

Last, and by no means least, we have those rather fetching 3" high, clip-on colour panels. These fit round the bottom edge of the PC and come in a range of fetching shades so you can tailor your PC to your mood and the decor. . . Although I personally wouldn't pay a penny extra for them, I certainly wouldn't turn my nose up at them either. It's a bit of harmless fun, that's all.

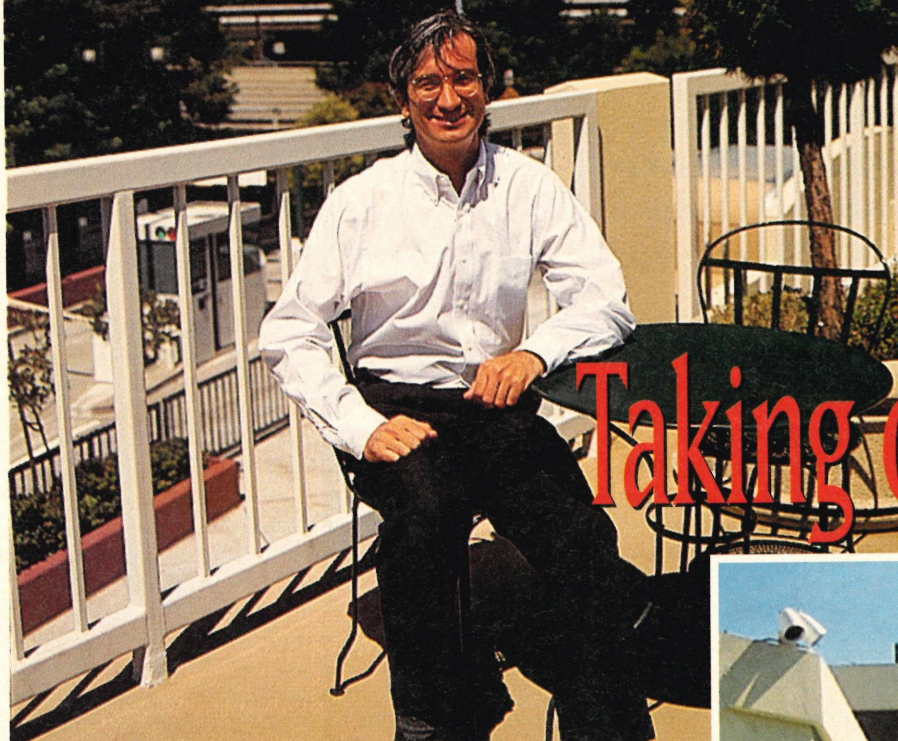
• Spectria range of PCs from Packard Bell. Contact (0753) 831914 for further details.



FEATURES



# Maxis



SimCity 2000 was just the beginning. Maxis plans eventually to simulate the whole world, no less. Join Christina Erskine at the Maxis HQ in Orinda, California, to hear what Maxis co-founder Jeff Braun has planned for the SimFuture.

## Taking on the world

**M**axis is not in Silicon Valley, that strip of land south of San Francisco that virtually gave birth to personal computer industry, but it is very much part of it. Its two founders, Will Wright and Jeff Braun are both programmers of long standing, who joined forces in order to realise their own highly individual ideas of what people really wanted to do with their computers. Their offices in the 1920s theatre complex in Orinda, high up in the hills above Oakland, are a far cry from the low-rise, high tech, anonymous buildings that characterise Silicon Valley firms.

However, it was in Silicon Valley that Jeff Braun saw the game that changed his whole view of computers and what to do with them.

"I was developing Amiga software at the time — it was 1985 or 86, and I was doing a font editor. However, since it was for the Amiga, it wasn't going anywhere, and I really wanted to do games. I reckoned games would be creative and open-ended, but also that they would be easily ported to any viable format."

"I was looking at the customer profile for people buying PCs, and found that was mostly adults, but

Jeff Braun relaxes on the balcony outside Maxis's offices in sunny California.

Maxis occupies the upper level of the Orinda theatre square. Nipping out for a sandwich is a highly enjoyable exercise — the ground level is given over to European style cafes and upmarket shops.



## The PC Review profile



that the games were designed for children. It seemed obvious that we needed games that would appeal to adults."

Then Braun came across Little Computer People, a title designed by David Crane and Rich Gold for Activision on the Amiga which stifled in the shops — it barely broke even — but which convinced Braun that entertainment software could be far, far more creative than they were at the time.

Little Computer People set up the fantasy that a small man lived inside your computer. The screen showed the interior of his 'house', and you could watch him go about his daily chores. Your main task was to feed him and pay him attention, or else he became sad and plaintive. And, er, that was it. No quest, no shooting, no need to make him profitable or options to research new houses for him to live in. He was the computer equivalent of a pet goldfish. Of course, everybody, Braun included, eventually decided after the novelty of petting him and feeding him wore off, to try to starve him out — to see if he would actually keel over and die. Eventually, he does (although I'm sure I remember one heart-rending sequence when he actually pounds on the front of the screen, crying out to be fed), but what Braun found intriguing was that no matter how many notices he put up on his screen, or how many warnings he gave out, other people in his office would keep taking pity on the poor hungry guy and feed him.

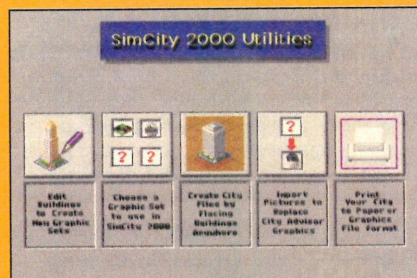
"It seemed to have such an emotional pull on people. Not long after that, I met Will Wright and saw his early work on a game he called SimCity, and really, everything just fell into place."

Will Wright was already a freelance games designer. He was doing a lot of work for Broderbund at the time — including Raid on Bungeling Bay. In one sequence in Bungeling Bay, you have to take a helicopter and blow up a city. In a very indirect fashion, this was the inspiration behind SimCity: Wright found he had more fun designing and building the city than orchestrating the parameters for blowing it up. "So the city in Bungeling Bay was actually the prototype, and if you look at it closely, you can see the link," Braun reckons. Broderbund, apparently, was not impressed by the idea of an open-ended city creation program and turned Wright's idea down.

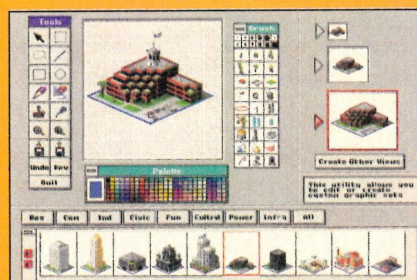
Wright and Braun met for the first time at a party hosted by Braun and discovered just how similar their ideas for games were. They co-founded Maxis in 1987 and spent two years devel-

## DESIGN YOUR OWN BUILDINGS

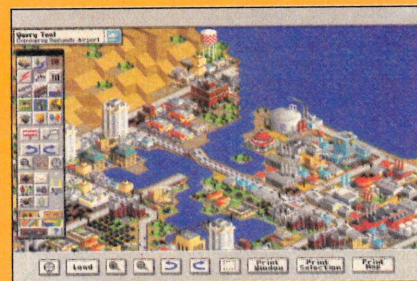
**The SimCity Urban Renewal Kit is an architecture add-on to SimCity 2000, currently planned for release with the CD-ROM version of the game as well as separately. With it, you'll be able to customise the look of your cities by designing your own buildings, and having more control over what goes where.**



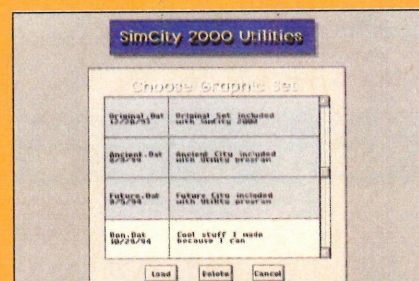
There are five main options being developed at the moment, from a simple 'create your own buildings' feature, to an option allowing you to place any particular building, anywhere. However, according to project manager Larry Lee, this last option is proving troublesome at present.



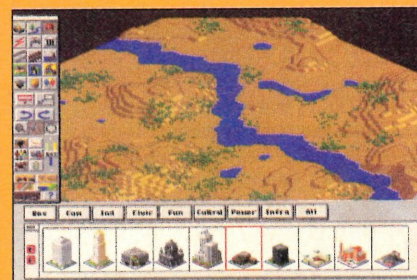
In the buildings editor, you'll have a set of tools similar to those in a drawing package, plus a selection of clip-art style bits and pieces, which can be added to buildings to give them that personalised look. Here, the US flag has been placed on the top of the familiar office park. Also note, you can change the colours with the palette at the foot of the screen.



You will be able to load in the editor, or a new graphics set from within SimCity 2000 itself, as shown here. Note that a further function of the URK is that you will be able to print your city out on paper.



You'll be able to create more than one new set of buildings, so you might, for example, want to set some of your cities in historical periods, or build a city made for the far future, or simply build a set of buildings you like the look of.



This option to place buildings in specific places is still in the early stages of development. Here you should be able to let your cities grow around a specific feature or style of architecture.

## HOW THEY ARE RELATED



You just can't help noticing the resemblance between the theatre square in Orinda, California, where Maxis has its offices, and the theatre square in SimCity 2000, which will appear on a 3x3 dense commercial zone in a city of some prosperity. Could they by any chance be related?



oping and fine-tuning SimCity, which was finally released in 1989.

But Braun never forgot Little Computer People, and co-designer Rich Gold, who now works at Xerox's PARC research facility in Palo Alto, has been working on Maxis's big SimWorld project in his spare time.

### Sim World

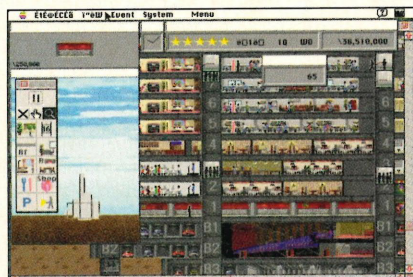
Anyone who's followed Maxis over the years can't fail to notice that its titles all run close to a single theme — all those "Sims" in the titles are a pretty hefty clue. And it isn't just a case of branding: Jeff Braun and Will Wright are men with a Vision.

This vision is Sim World, and the base for Sim World is SimCity. In Sim World, you can walk through your city, you can fly over it, you can go inside the buildings, and you can take part in 'micro-simulations' — for example, click on the sports stadium and you enter a football game, click on the police station and take over the running of SimCity's law enforcement.



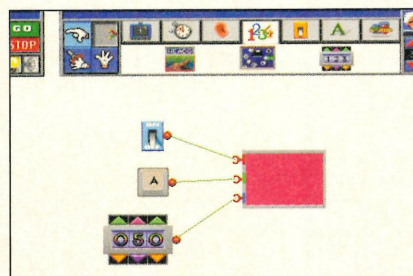
## FORTHCOMING

### Sim Tower



Sim Tower can be variously described as a vertical SimCity 2000, a game set inside a SimCity 2000 arcology, a delight for voyeurs, or a computer doll's house. See our full preview on page 91 of this issue for more on Sim Tower.

### Widget Workshop



Billed as an educational game for children, this involves making up arithmetical or algebraic equations using pictures and symbols available in an Incredible Machine kind of way. You might, for example, divide the distance of the earth from Mars by the weight of a tube of Smarties. No, I can't think why you might want to, either, but you have to admit it does have a certain open-ended appeal.

### Klik and Play

A Maxis program only in the US, this is being published by Europress Software in the UK. Klik and Play is the PC follow-up to the highly successful STOS and AMOS game creation programs on the ST and Amiga. Klik and Play, however, does not require any text input or special script language to be learnt; you create

your games by selecting icons and parameters from on-screen menus. The results can be as simple as you like, or startlingly complex — my own attempt, Maid Marion and the Quest for the Pint of Lager, belonging below even the simple end of the scale.

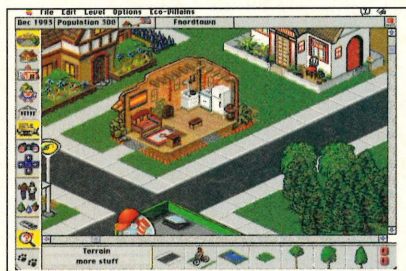
### Print Artist

The market for DIY print programs — a sort of home version of desktop publishing — is far more established in the US than the UK, and this sits up against heavyweights such as Broderbund's Print Shop Deluxe and Software Toolworks' Cardshop Pro. It has a bewildering array of options for text and graphic customisation to help you create logos, greetings cards, business cards, posters, flyers, invitations, and so on, and so on. Provisionally due for UK launch early next year.

### Wrath of the Gods

This must be one of the easiest ways to brush up on your knowledge of Greek mythology: a puzzle-based adventure set in the land of the Greek gods with photo-realistic backgrounds and digitised actors as the gods and goddesses themselves. This is somewhat out of Maxis's usual sphere, having been developed by affiliate company Luminaria.

### SimTown



Already nicknamed Sim Junior, this enables you to build a mini-SimCity with enlarged buildings that you can open up and look inside. You'll find the bakers baking, the greengrocers weighing out the fruit, the fire engines tuning up, and so on.

Each building is colourful and drawn to represent its contents, so it should have instant appeal for younger players.

### Unnatural Selection CD



If Wrath of the Gods is "different in approach", wait until you get a load of this. Unnatural Selection is a strange, but rather well done, tale of genetic mutation and world domination. Indeed, you half-expect someone to say, "I've been expecting you, Mr Bond" as you drop in on one of the islands armed with super-bred theroids, a few cartons of extra Rage and Lust and a helicopter. Already quite weird enough on disk, it's not going to get any more sensible on CD-ROM.

### SimCity 2000 CD

The exact constituents of SimCity 2000 CD seem to be shrouded in secrecy (perhaps Maxis itself hasn't really decided yet). Anyway, here are some things we do know about it: 1) it won't have any video sequences; 2) it will have the Urban Renewal Kit included — see panel elsewhere on these pages; 3) it might well have some different buildings anyway; 4) it should have lots of scenarios, including the disasters and the great cities, which are coming out separately on floppy disk; 5) er ... 6) that's it.

### Great Cities of the World

London, Paris, Milan, Venice, Barcelona, Madrid, Tokyo, Sydney, Washington ... ten more scenarios featuring ten famous cities of the world in SimCity 2000. You'll need the original program to play this.

### Sim Rainforest

In development by Intelligent Games (see PC Review Profile, Issue 34), this returns to one of Maxis's favourite themes: ecology. You need to create the right balance of environmental and economic factors for the rainforest region to survive.

You can see how some of this is already taking some sort of shape: it's not too difficult to imagine clicking on SimCity's rail network and being transported into A-Train — or how about tapping into an arcology and bring taken into Sim Tower, one of Maxis's forthcoming titles.

### Go play in the park

And there's no need to restrict this to Maxis's own games. Suppose you include a golf course in SimCity which would give you access to a golf simulation. Suppose you had a theme park ...

"Peter Molyneux at Bullfrog and I have known each for a very long time. He's very interested in our ideas and we talk a lot on the phone," says Braun. "Theme Park is a game which is very close to the Maxis idea of 'software toys', or 'tools and toys'. Our products are all about people creating something that they can then play."

The informal Bullfrog/Maxis links do indeed go back some way. One much-mooted idea some

years back was to provide a facility to import Simmed cities into Populous. According to Peter Molyneux, this proved problematic to implement with existing games, but "in Theme Hospital, we're definitely hoping to be able to incorporate a 'Maxis link' in the game". Theme Hospital is the follow-up to Theme Park, and will be a "very, very tongue-in-cheek game based on running a hospital. You'll have to balance things like plastic surgery, which brings in the money, with casualty services, which are essential to the community's well-being".

In its most prosaic form, Sim World will be a games engine 'standard' that both Maxis and third party companies will be able to use in order to provide a launch platform for their own games. "At the moment it's only us developing for it. We want to bring third parties in, but not at first. The system just isn't clean enough yet, so we'd end up doing more in the way of technical support for it than anything else!" says Braun.

"It's tools and toys: our products are all about people creating something that they can then play": Jeff Braun, co-founder, Maxis





Braun also has plenty of ideas for other contributions to Sim World, such as 'props' to go in the games as well as the linked games themselves. "Any mature market will fragment. For example, if you buy a stereo system, and you're a discerning buyer, you'll buy it in components, not as one single system. The same thing will happen in games. You might buy, say, a Wild West set first, then some characters, then some story modules so that your whole system falls into place.

"Other companies can come in with their own specialist components as well: a set of Japanese furniture, or different types of car, or whatever. There'll be editor programs so that you can modify or create your Sim World interiors, and you'll also be able to download loads of little objects from bulletin boards — tiny things would cost very little and getting things online will be quite usual — it would be like clip-objects, rather than clip-art."

However, Sim World has already gone beyond the 'grand concept' stage. Braun has appointed a

team of people to work full-time on Sim World, and has hired Jim Macraze, former chief engineer for the Amiga operating system — "so he knows all about building a multi-user, multi-tasking operating system" — to be Sim World's 'architect'. He hopes that Maxis will be able to release the first Sim World products in a years time, with more following a year after that.

"In some ways we've been waiting for hardware standards to catch up with what we want to do. You'll probably need a high-end 486, say, a 66MHz, a Pentium, or a Power PC in order to use it properly."

### Design your own Sims

The SimCity 2000 Urban Renewal Kit (see separate panel on page 43) shows the editor/creator idea in development, while PC Review was also treated to a sneak preview of Maxis's Project X, the part of Sim World currently being worked on in which you can create your buildings room by

room, furnish and people them and then walk right inside these, your city's houses. In this module, you will also be able to create your own Sims (somewhat larger than the blue dots that currently represent their cars in SimCity 2000, you'll be glad to hear), and animate and clothe them, before letting them loose on your own city. But this work is at a very, very early stage — my request for pictures to publish on these pages was met by a phalanx of raised eyebrows that clearly said, "You must be joking".

Whether or not you find Jeff Braun's vision of the Sim future exciting, or not — you could argue that it's an odd thing to create your own virtual world when there's a real one prepared earlier just outside your doorstep — it is refreshing to find a software publisher with such a clear idea of what the company is working towards developing in the future. Certainly anyone who has enjoyed Sim City 2000 (count me in on that one) should find Braun and Wright's plans utterly fascinating.

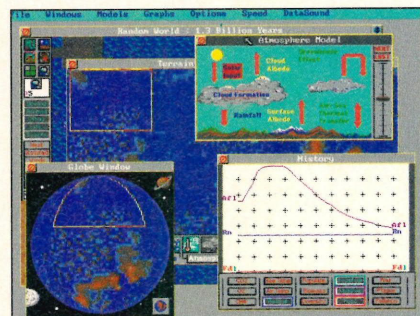
## MAXIS SOFTOGRAPHY

### SimCity

Released 1989; price £34.99, in Maxis Collection Volume 1, also £21.99 in SimCity Classic with new graphics set to be released in September.

Venerable oldie about which it would be sacrilegious to say anything remotely uncomplimentary except that it has now been superseded by SimCity 2000. Various accessory packs followed.

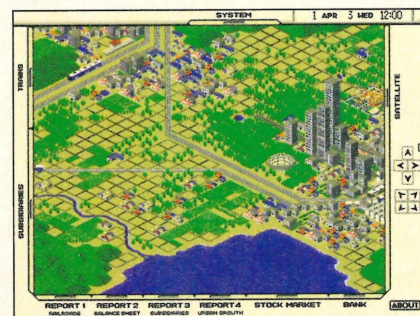
### SimEarth



Released December 1990; price £34.99, in Maxis Collection Volume 1, also £17.99 in rereleased version in September.

Ecological simulation of life and evolution based on the Gaia theory of earth's survival and renewal. Worthy and more overtly 'educational' than SimCity.

### A-Train



Released September 1992; price £21.99, to be rereleased with Construction Set in September.

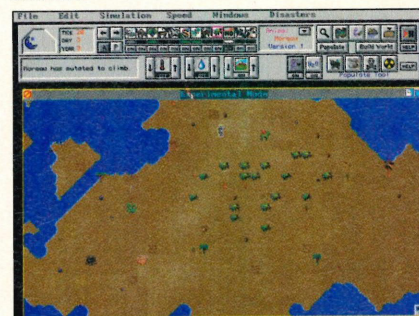
SimCity with trains. You build the rail infrastructure and the Sims follow if the environment you create is suitable. Interestingly enough, the further you get in A-Train, the less it has to do with building railways.

### A-Train Construction Set

Released January 1993; price £21.99 — as part of above package.

Companion and add-on program to A-Train, enabling you to customise many of the features of the original.

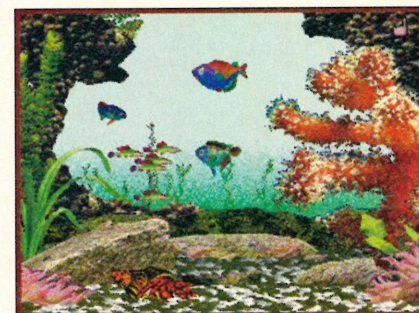
### SimLife



Released January 1993; £34.99 in Maxis Collection Vol 1

Influence the evolution of life on earth with the emphasis on genetics and matching lifeforms to the appropriate habitat. Again, there's a strong educational slant running through the game.

### El-Fish



Released March 1993; price £29.99

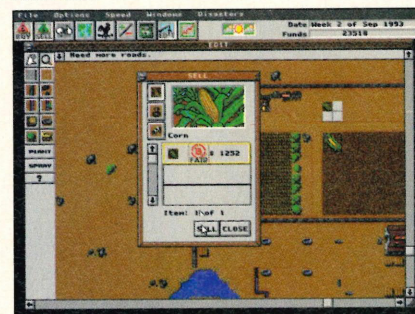
Or Sim Fishtank by any other name. Your task here is to create an aquarium, first by breeding and cross-breeding fish to produce some aesthetically pleasing varieties, then by decorating your aquarium using the clip-art provided by the program. An attractive, but ultimately rather pointless 'game'.

### SimAnt

Released April 1993; price £34.99, Maxis Collection Vol 1

Run the ant colony efficiently and effectively and avoid the traps laid by the human inhabitants of your terrain. Again, a program with an educational slant to it, though it depends just how much you want to know about the private lives of ants.

### SimFarm



Released November 1993; price £34.99

This agricultural simulation is rather more hands-on than the SimCities. You have to take note of market conditions to sell your crops (and livestock) at a profit, take account of the climate, and make sure you're growing the right stuff in the first place.

### Unnatural Selection

Released January 1994; price £29.99

You breed a super-race of fighting, running and mating animals, ready to do battle on an island archipelago against a sinister collective of world-dominating scientists. A very odd, though rather endearing resident of the games' twilight zone.

### SimCity 2000



Released February 1994; price £39.99

This is how sequels should be done. SimCity 2000 takes the original in all its wonderful simplicity and adds beautifully detailed 3D-look graphics, an utterly intuitive interface, options which really put you in charge, and makes this an absorbing experience.

### SimCity 2000: Great Disasters

Released June 1994; price £14.99

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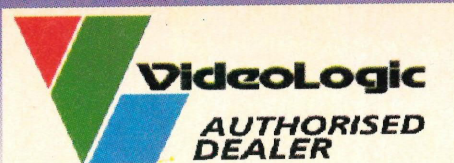
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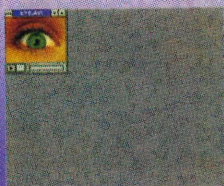
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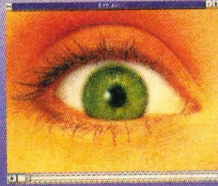


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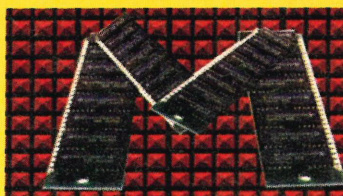
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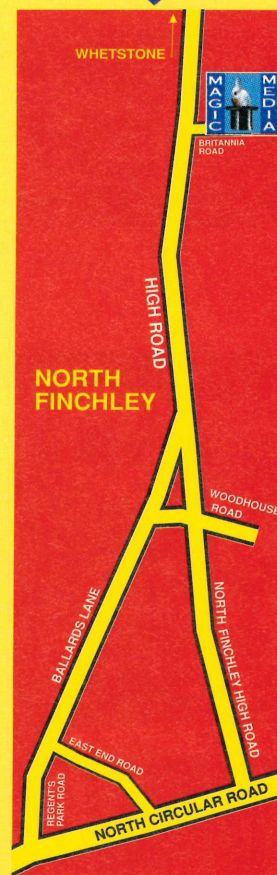
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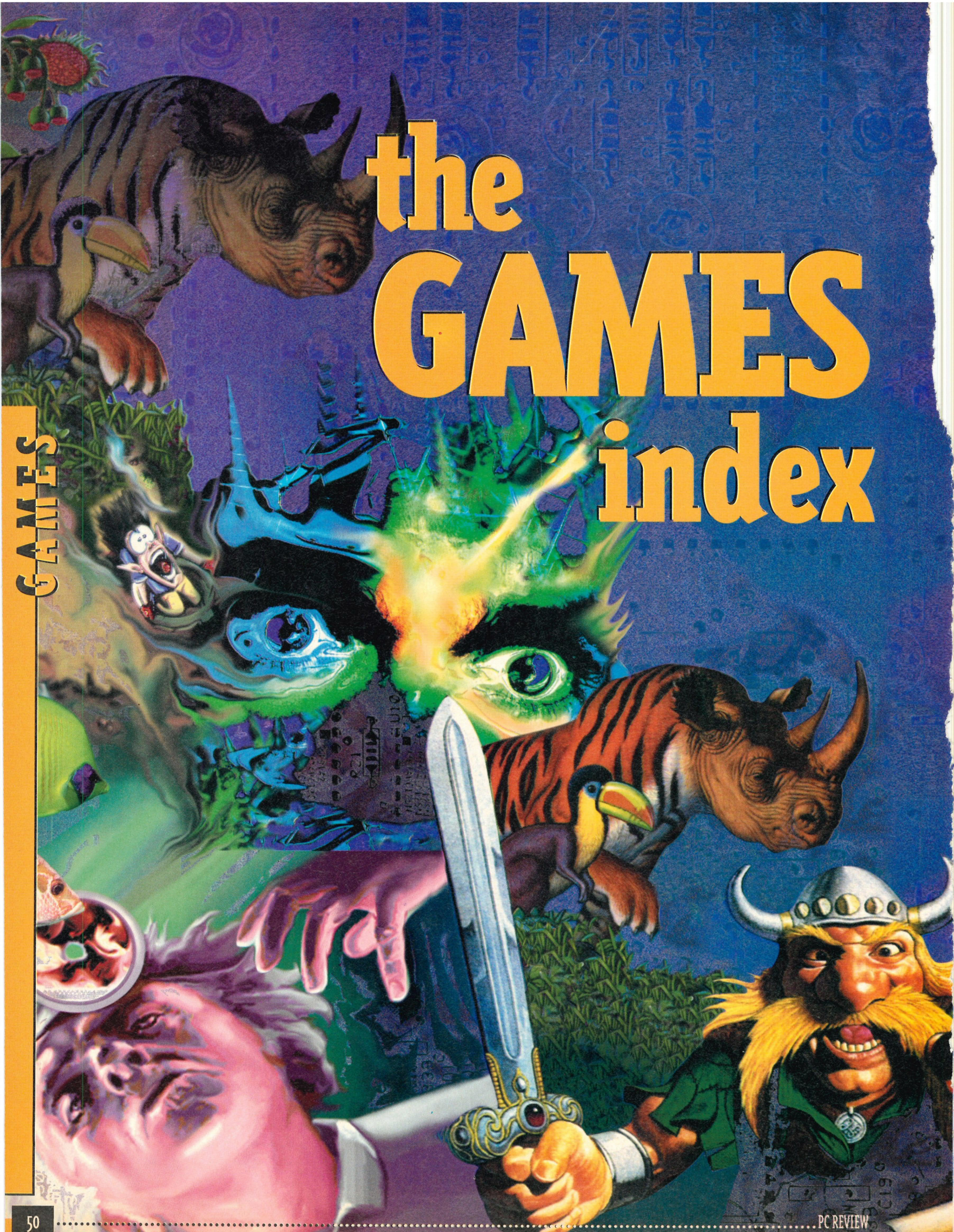
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# the GAMES index





# W

elcome to PC Review's games section, 50 pages of reviews, news, previews and tips covering absolutely everything that's happening in the world of PC games.

We know from our surveys and correspondence that you consider the reviews not only the most important part of the magazine, but also the best games reviews in the business. That's why we take the trouble to include additional information such as the Alternatively panels which are there to place the title being reviewed in context. We'll tell you about similar types of game which may be more - or less - to your taste. We also include playing guides to many of the games we reviewed, designed to give you a feel for what the game is really like.

## The ratings

PC Review gives a single mark out of ten to rate games. We chose ten because it's succinct, simple and because there's little point in haggling over the odd percentage point between an arcade game and a war game which can't really be directly compared anyway.

We can be pretty tough on games when we put our minds to it - since 'five' is the average mark, any rating above five means the game is above average and vice versa.

0: A game without absolutely nothing to recommend it to anyone.

1-2: Poorly implemented game, badly programmed, very disappointing.

3-4: A game with some good ideas but serious drawbacks: poor controls, poor animation, maybe just plain tedious.

5: A solidly average game. Competent without being anything special, probably enjoyable in the short term.

6: Won't disappoint any fans of the genre; an above average title but probably one which doesn't break any new ground.

7: Good, imaginatively programmed game which should appeal to the majority of players.

8: Very good indeed - a game will need something special in the way of gameplay, innovation, graphics or sound to worth an eight.

9: Outstanding as an all-rounder. Few, if any, failings, in graphics, sound, atmosphere, playability, ease of use, etc.

10: Sheer perfection.

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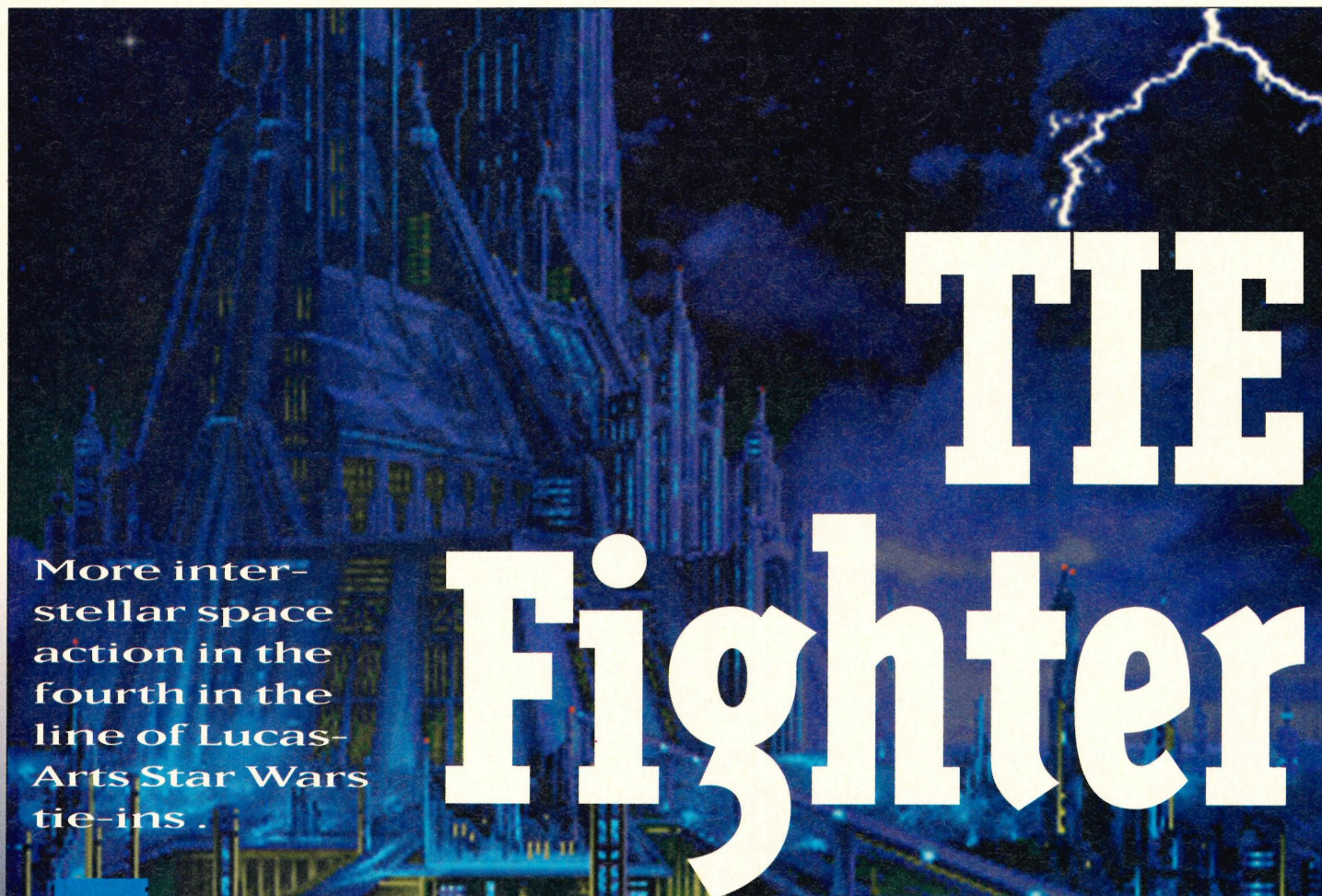
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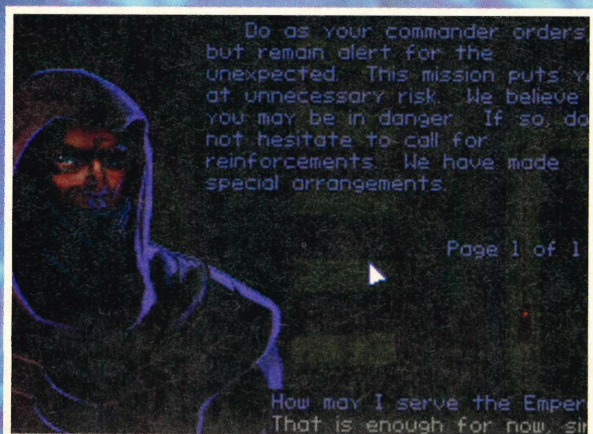
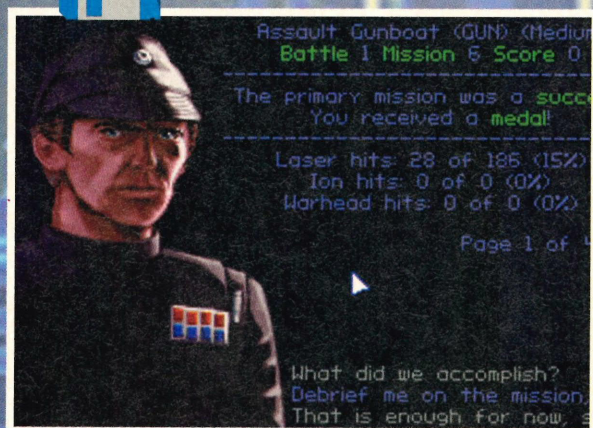




# TIE Fighter

More inter-stellar space action in the fourth in the line of Lucas-Arts Star Wars tie-ins.

DISCONTINUED



Part of the attraction of X-Wing was that you were playing one of the Good Guys from a movie series that practically every sentient being on this planet could recognise. (The Star Wars series, in case you've been in Outer Mongolia for the last 20-odd years.) The course of the entire game was geared up to the assault on the infamous Death Star. A grand finale by anybody's reckoning.

Life was simple, right was on your side and your mission was clear. Oh yes, and the Force was with you, with any luck.

It could never be the same in TIE Fighter, the fourth in the line of LucasArts Star Wars games. Try to make the following mental contortion: "you are now part of an heroic band of Imperial fighters ... saving the Empire from the destructive onslaught of the Rebel Alliance". Doesn't work, somehow, does it? Whichever way you look at it, it still feels odd to be blasting Rebels into vacuum, and there's nothing like the clear-cut ending to aim for.

## The bloke in the cloak

To try to maintain the atmosphere and sense of purpose that was so evident in X-Wing, TIE Fighter has had to come up with a couple of new tricks.

True, if you ignore the cosmetic tweaks, the basic setup is nigh on identical: a series

of ongoing battles with assorted missions (50 in total), training scenarios, points scoring along the way, promotions, medals and all that palaver, plus enough on/off difficulty, detail settings and keyboard controls to put even the most hardcore flight sim to shame.

But now, alongside the standard mission briefing and primary objectives, there are not only secondary missions, but also bonus missions thrown in as part of a running sub-plot or two.

These bonus missions bring you into contact with a shadowy, cloaked figure who will give you special instructions and hints. These may well be at cross-purposes with the main mission briefing — the gist being that there are traitors in the Imperial ranks, some very smelly political manoeuvring going on, and you are going to help uncover these enemies of the Empire. This in turn brings something of an air of mystery to your role in the game. I found I paid a lot more attention to the cut scenes and messages in TIE Fighter than I ever did in X-Wing. I had to.

## Love in a goldfish bowl

So what does it feel like to fly a TIE Fighter? Well, rather like being in a super-sonic goldfish bowl with wings to be honest. It's not half as glamorous as an X-Wing, and your basic model TIE Fighter is actu-



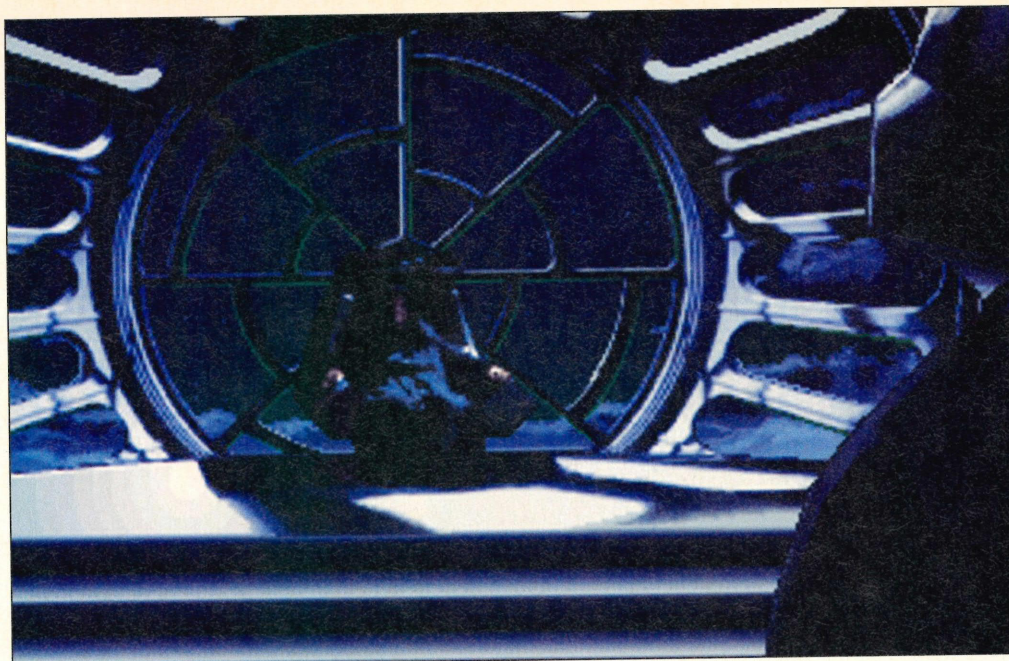
ally a rather primitive, under-powered and out gunned craft. You soon find out that when piloting a tiddly spaceship with no shields like this, the last thing you want to do is get close to one of the massive capital ships. Two hits and you're history.

The cockpit is difficult to see out of — how about a virtual cockpit, by the way? — so I found I spent most of my time swapping from 'cockpit' to 'no cockpit' views, particularly when chasing a particularly slippery opponent as he (or possibly she) flashed across the screen.

Still, TIE Fighters turn on the intergalactic equivalent of a sixpence, and they do make excellent little fighters in a tight dogfight. You don't have to stick with the standard TIEs all the time.

There are gunboats, TIE Bombers and TIE Interceptors to climb into as you progress through the missions (plus the obligatory bigger and better weaponry). And, as the 'plot' really starts to unfold, the Advanced TIE Fighter appears on the scene. These are a bit special, it has to be said. Well, special when you're flying one of them — but not so much fun when you're up against them. You just can't hit the damn things because they move so fast and turn ridiculously quickly. Track one with a torpedo? Not a hope in hell.

Obviously there are more than a few enhancements to the combat, visually and in terms of gameplay. The most immediately noticeable thing is the general facelift the game has received, including the now obligatory shading and texture mapping.



Wow! Well, what a surprise. What game hasn't got texture mapping and shading these days? Yes, it's an improvement over the basic polygons of old, but it doesn't make that much difference — these Star Wars games were never graphically led to start with.

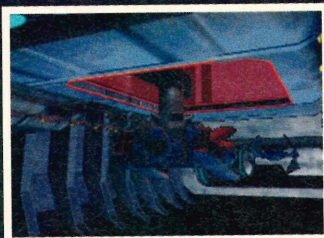
So, as far as the new graphics go, I can take them or leave them: you really only notice the difference when you get close to the bigger ships — where the detail is quite impressive but not earth-shatteringly so. As for the little ships, they move so quickly

that you rarely get more than a few seconds to take a look at them anyway.

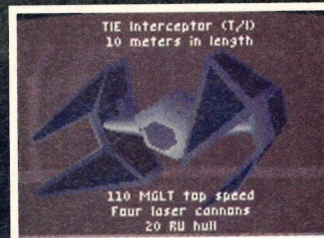
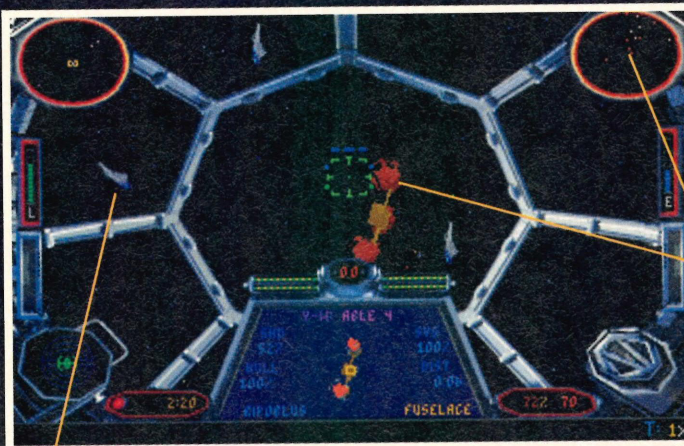
The extra features make far more difference to your enjoyment of the game. Features like being able to call in reinforcements when you're up to your neck in it, reload your missiles from a handy tug, or just bug out when you don't fancy your chances of survival. Generally speaking, LucasArts has tweaked it here and there, adding new options to make a better balanced game as far as the combat goes. Let's face it, it wasn't going to be that

**Scene one — The Emperor's New ... er, empire, I guess. Enter Darth, stage right ...**

## SPACE COMBAT — TIE STYLE



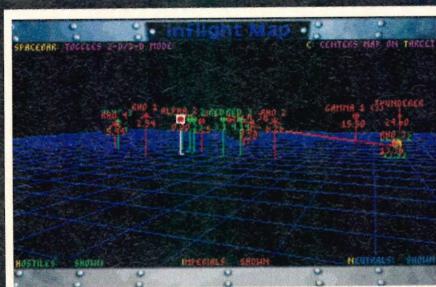
Fully briefed on the mission, your TIE Fighter is launched into action from the bay of an Imperial Star Destroyer. You get to select from a range of weaponry including torpedoes, missiles and heavy rockets.



Tie Interceptors in your wing — and other friendly craft — show up as red dots on your front and rear radar screens. Right now, you have a limping Rebel Y-Wing right in your sights. Bye, bye, Y-wing ...



They don't come much bigger than an Imperial Star Destroyer. Funnily enough, you still end up shooting at them again.

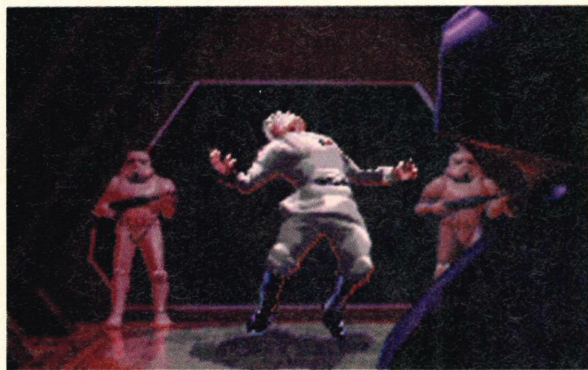


With so much going on out there, and so many objectives to achieve, the new 3D inflight map is invaluable.



External views were never a strong point, but the extra detailing and shading is still a considerable improvement.





**A simple message for the Imperial traitors: don't mess with Darth.**

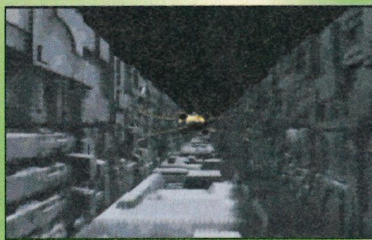
tough a job, was it? The core of the original game was always a good one — a sound combination of reflex and thoughtful gameplay — and now it's had its remaining rough edges smoothed out.

Still, I was intrigued to see how the combat would work out. In X-Wing the general idea seemed to be that you, as a Rebel pilot in your trusty fighter, had the superior spacecraft — and of course the Force — on your side. So to make things a little tougher all round, and because you were one of a handful of brave Rebels fighting a glorious battle against the massed arsenal of the Empire, you were always ridiculously outnumbered.

But this time round, that wouldn't make much sense, and so you're never likely to find yourself massively outnumbered.

Instead, the primary and secondary objectives are such that you've got enough on your plate inspecting cargo haulers, capturing shuttles before they hyperdrive out of the neighbourhood, disabling corvettes and protecting diplomats, before you even start to worry about the approaching Y-wings (lumbering but well armed), X-Wings (so-so), A-Wings (don't half dodge about a bit) and pirates (a turkey shoot). There's so much going on, so many space craft zapping about left, right and centre, that the only way to

## ALTERNATIVELY YLIVITANRETJA



**Rebel Assault**  
Rated 9, Issue 27  
US Gold, £44.99

If you like your Star Wars action a little simpler and a lot more direct, Rebel Assault is the one for you. Stunning cinematic sequences are coupled with frantic shoot 'em up action to produce what is probably the most exciting CD game to date.



**Frontier: Elite 2**  
Rated 9, Issue 26  
Gametek, £44.99

David Braben's sequel to the classic Elite is a game on a very large scale, involving trading, exploration, missions and, of course, battles. Combat is unfortunately very hard to get to grips with, but this game contains enough to keep you playing for months.

tackle this little lot and expect to survive is to co-ordinate the attacks of the rest of your flight in a suitably expert fashion, while flying flat out yourself. Tough to do, but great fun trying.

Even so, TIE Fighter is not as hard as X-Wing overall. Actually that's probably not the right way to describe it: maybe it's fairer to say that it's not as unreasonable as X-Wing could be. The missions build up in a balanced way and you don't get stuck on a particular one for a week for something that in the cosmic scheme of things is a trifling detail. On the whole, TIE Fighter is a very well balanced game.

### The grand finale

Watching people in the office playing TIE Fighter when it first came in, I have to admit I was more than a little disappointed. Totally underwhelmed, in fact, and I was all set to dismiss it as simply a cash-in job by LucasArts, an overblown data disk at a premium price.

To an extent, that is what it is. Sure, the

game has been given a thorough overhaul to beef up the graphics, weed out any of the awkward or irritating bits, and generally tighten it up. And true, you get to play the Bad Guys for a change, which is something of a novelty. But even so, TIE Fighter is essentially more of the same.

But that is also why it is, without any doubt, an excellent game. TIE Fighter has the same 'hook' to it that kept you playing X-Wing to the bitter end, and then on to Imperial Pursuit and B-Wing. "Just one more mission..." I kept promising. "Just one more then I'll stop. Honest."

The only thing I'd really have like to see in the game that hasn't made it, is a head to head option. Any new flight sim that turned up minus a modem/serial link option would be sent home to get one pronto. So why not TIE Fighter? But, on the major counts of polished and extremely challenging gameplay, I can't fault TIE Fighter. If you are going to pay £49 for a game, it's worth every penny.

■ John Bennett

**TECHSPEC**  
**8**  
RATING



More of the same, but very welcome for all that

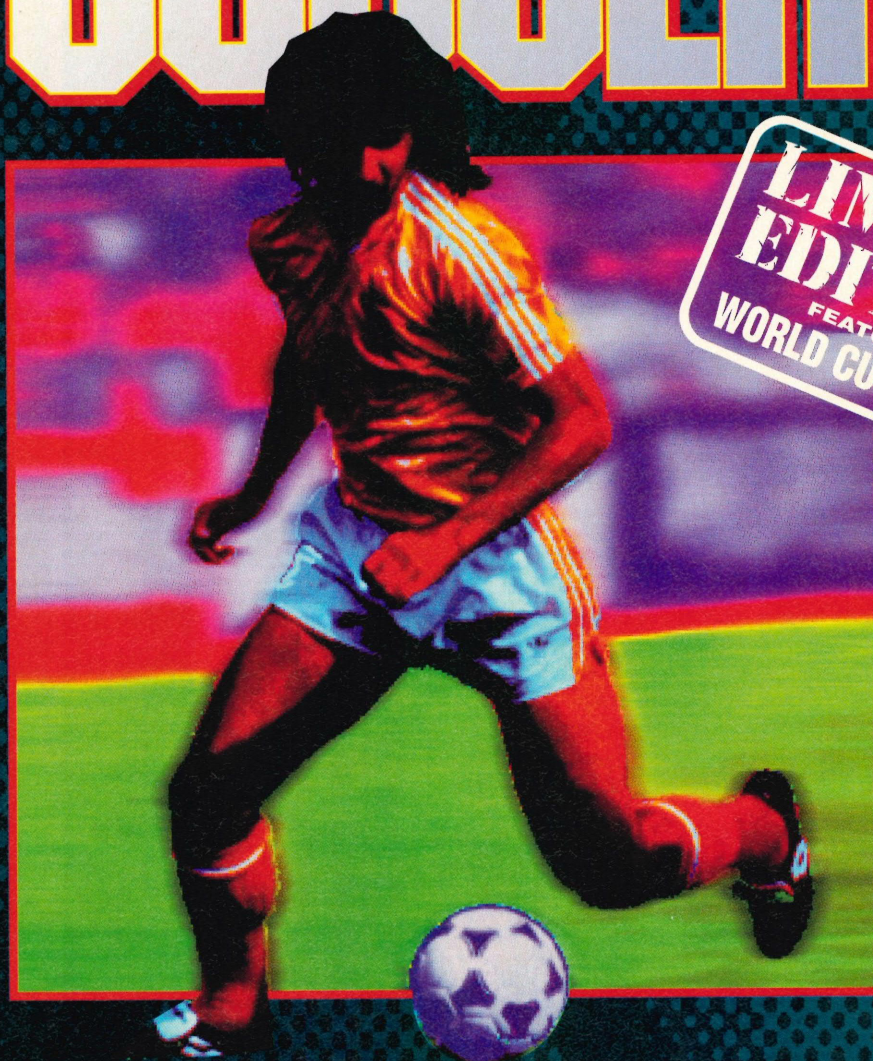
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# Outpost

Sierra's first attempt at producing a strategy game looks promising, but will it end up lost in space?



you may end up having to leave some behind in order to make space for a second power generator or extra equipment. But then, hey, no one said saving humanity was going to be easy.

You have some limited information about distant star systems, but finding a decent planet is a bit of a shot in the dark. Unfortunately you're on a one-way ticket, so it has to count. With bits of the earth exploding all over your rear-view mirror, you're off into hyperdrive.

and dotted liberally with mines. At this point you launch your seed factory, which contains sufficient life support and construction materials to get you started.

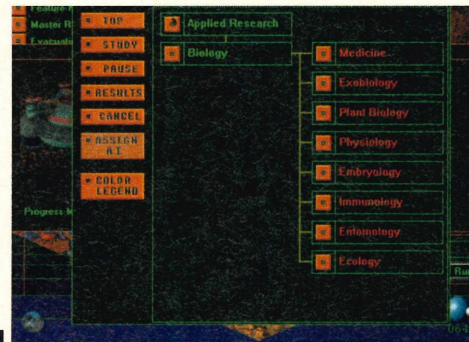
From here on in it's SimCity in space, though there are significant differences. For example, money doesn't enter into the equation, so you have to juggle with mineral and metal resources, not cash. Also the population starts from such a low base that rapid growth just isn't possible. But the principles of colony and city manage-



**O**utpost is set 50 years in the future and begins cheerfully enough with the Earth about to be destroyed by an asteroid. Only one earthling (you) has had the foresight to build a starship, so you're responsible for nothing less than the survival of the human race. Unfortunately there's very little room on your interstellar Mayflower, so although you can save up to 200 people

## Sowing seeds

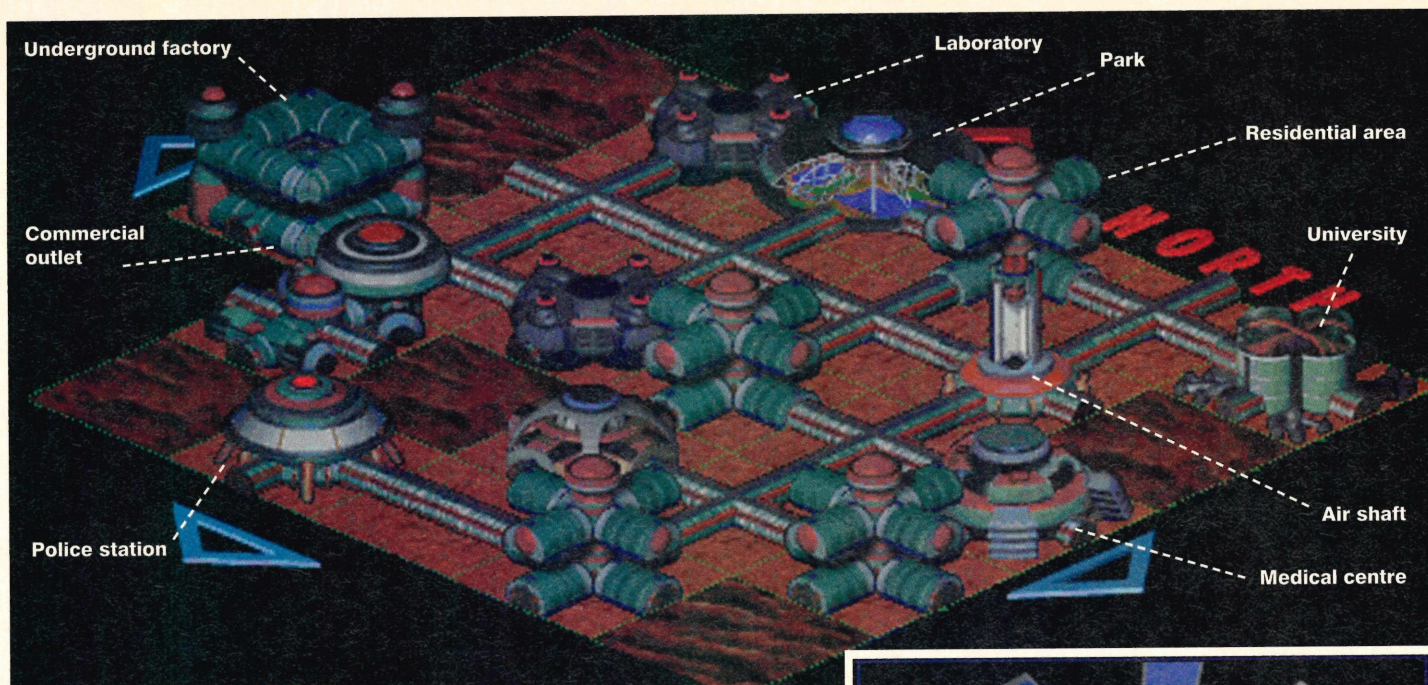
Let's assume you find a likely planet at the other end. It won't have a breathable atmosphere, but hopefully it'll be rich enough in natural resources to sustain a colony. Your probes can highlight up to four potential landing sites, and you should choose a terrain that's as benevolent as possible



## ON THE SURFACE







## UNDERGROUND

ment are broadly in line and the comparison is simply inevitable. How then does Outpost fare?

Well, not too badly, but ultimately not well enough to threaten either SimCity 2000 or Civilization, the two clear leaders in the strategy stakes. Outpost is a bit of a mixed bag, with pros and cons cancelling each other out all over the place.

On the plus side the 256-colour graphics are excellent, and there's very good sound support. There are also some nicely animated sequences, but frankly they're irrelevant and once you've made planetfall you'll want to turn the animations off. What counts is gameplay, and in Outpost it's varied, deep and challenging. The area map is vast, encompassing not only the surface of the planet but also up to four levels underground. Start a colony now, and you could still be nurturing it come Christmas.

Bigger, though, doesn't necessarily

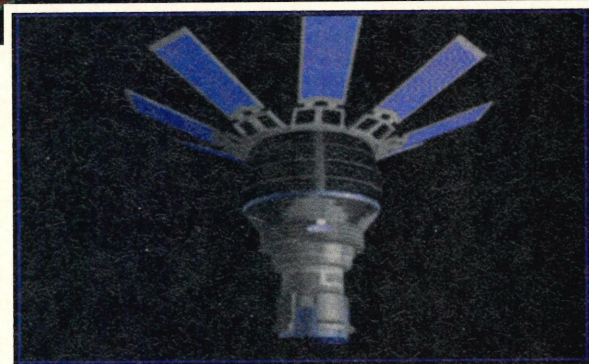
"Outpost is a bit of a mixed bag, with pros and cons cancelling each other out."

mean better. On the minus side the game is marred by inconsistencies and a degree of wilful incoherence. The manual is deliberately vague because you're supposed to find out everything for yourself, but extending this principle to basic

game mechanisms is absurd. For example,

instruct your seed factory to build robot miners and nothing happens, although you're supposed to get a new one every five turns. Obviously something's missing, but what? Looking

down the list of available structures you find 'robot command', which sounds promising, so you

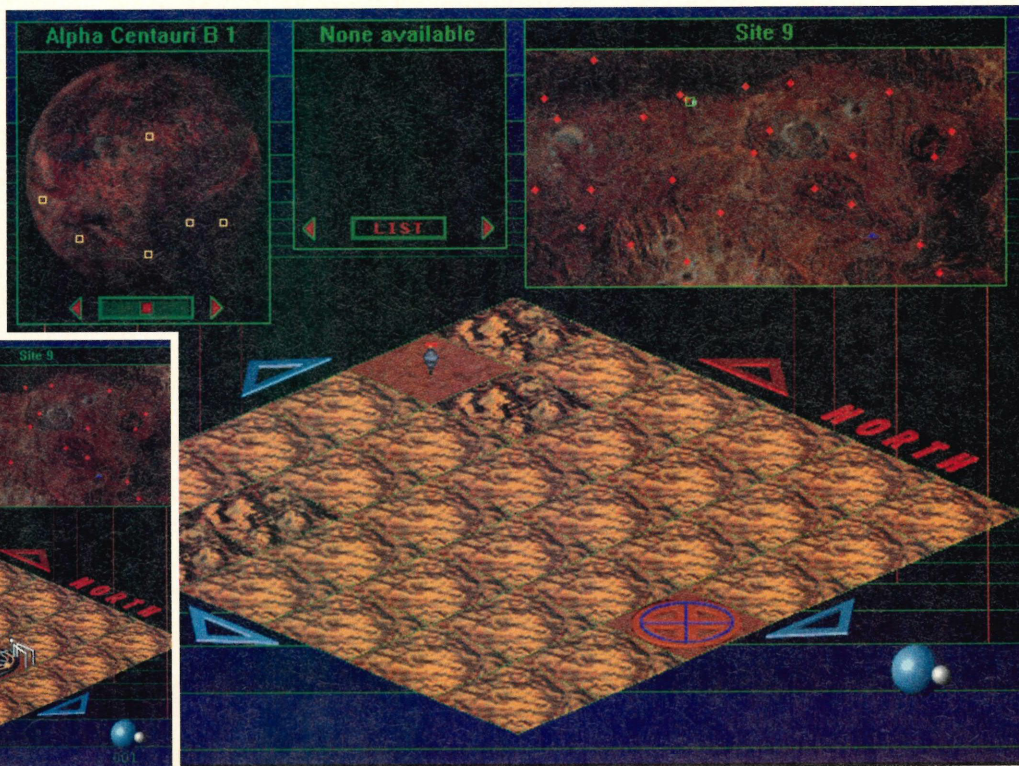


build one of those. No change, although as it turns out you've done the right thing.

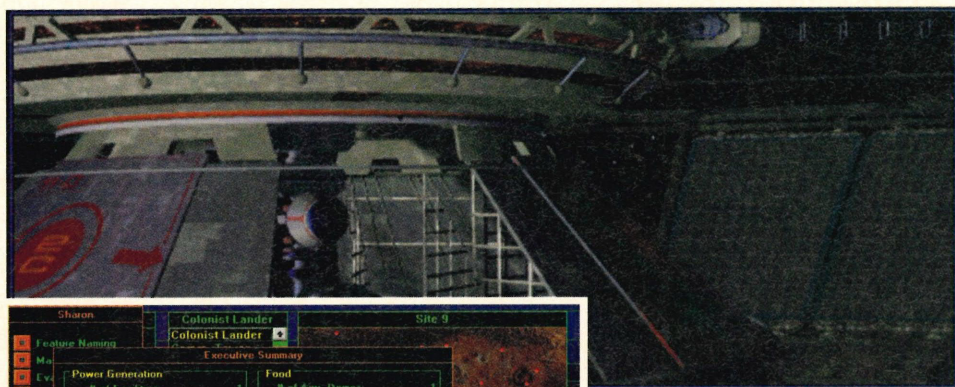
So what now? I tried building a communications tower, because that sounded logical, but no this didn't work either.

The answer? You have to build yourself a warehouse first. What harm could it possibly have done to inform you of this fact in the manual?

Above: you start the game by sending probes to four star systems while you load up your ship and mosey on down to Jupiter to await results.







Above and below: It seems that the planet Alpha Centauri B has a 0.057 habitable planet probability, which is as good as it gets. We'll give it a try.

## Experimental

Once you've built basic structures you'll need laboratories to conduct scientific experiments. Unfortunately you're given no clue as to what you should be researching, and trying out all the permutations is going to be a very long slog. Where exactly is the game going? I haven't a clue, although I will say that it's sufficiently absorbing to keep me interested. All this non-linearity, though, fine as sounds in principle, puts the larger picture out of focus in practice.

Outpost would be much easier to play if time-wasting routines had been eliminated. For example, set a robot miner to dig, and it will excavate one level. When it's finished you have to reassign it, but if you have more than one miner operating you've no idea which one has just stopped. You have to click around the mines individually to find out. Why aren't you auto-centred on the last working site? Or why not have the option to set it once to dig out all four levels? Similar examples of user unfriendliness abound.

Another frustration is that you can't

direct your workforce. This consists of your adult population, workers and scientists. Build a structure, and a few of them will be assigned automatically to man it. You cannot now move them, so if you urgently need personnel for something else that's too bad. The only way to return them to the work pool is to bulldoze the building, an idiotic waste of resources. Why can't you just temporarily close it down?

## Unfinished business

I don't know the answer to this and many other equally pertinent questions, but I do care, because Outpost's potential is massive and it wouldn't take much to turn it into a really first-rate game. The manual contains several entries relating to material that hasn't actually made it into this version, which is unforgivably sloppy coming from a company of Sierra's size and repute. It also gives the impression of being rushed at the last minute, and I do feel that it's been insufficiently play-

"Outpost's potential is massive — it wouldn't take much to turn it into a first-rate game."

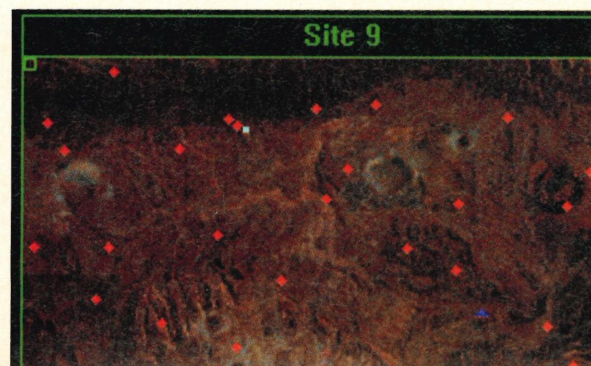
tested. Add-on packs are promised in the near-future, but will they correct the current failings or simply lob in more of the same? If it's to be the latter, it'll constitute a major missed opportunity.

Remarkably, Outpost is Sierra's first stab at a strategy game, and on sheer ambition alone it deserves to succeed. The designer, Bruce Balfour, is an ex-NASA scientist, and the result certainly has an authentic feel.

It's also addictive, and I shall keep banging away at it despite my irritation because I really want it to work.

Balfour also designed the dramatically different and tremendously excellent Laura Bow II, so there's no denying he's talented. Outpost has vast potential. Let's hope it fulfils it.

■ Simon Shaw



# TECHSPEC

## 7

RATING

Just a few rockets short of an asteroid belt.

**Publisher:** Sierra

**Price:** £49.99 CD, £39.99 disk

**Contact:** (0734) 303322

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**Minimum PC:** 386/25, DOS 5.0, Windows

**Minimum memory:** 4Mb RAM, 20Mb on disk

**Minimum graphics:** VGA

**Sound:** Sound Blaster, Roland

### ALTERNATIVELY

**SimCity 2000**  
Maxis, £39.99  
Rated 9, Issue 29

A simply wonderful game fully deserving all the plaudits heaped on it from every quarter. Superb intuitive design. I managed to get the hang of it with scarcely a glance at the manual, as opposed to Outpost which I've only just about grasped in spite of the manual. So good, you wonder how it'll ever be bettered. Maybe Sim Tower will do the job.

### ALTERNATIVELY

**Utopia**  
Gremlin, £11.99  
Rated 7, Issue 12

Also dubbed SimCity in space when it appeared, this is an enjoyable space-colony building game that has a lot in common with Outpost, although it doesn't aspire to the same level of realism. Fun to play, the chief drawbacks are limited scenarios and lack of variety — successive levels just offer more of the same, only a bit harder. Worth a look.





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# On the Ball

## World Cup Edition

So Brazil won the World Cup and we can all go back to calling the game 'football' instead of 'soccer'. But will you be able to 'manage' life without this?

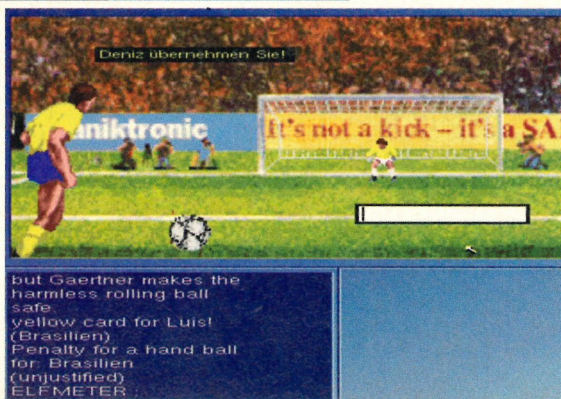


Once in a while a piece of software comes along which dynamically redefines the style for that genre. Given this, it's too tempting not to identify this game at the outset as one of those. On the Ball, you see, has opted for the graphic adventure type approach to football management, shamelessly borrowing the sort of point-and-click interface and multiple-choice questioning that dwells in the engines of Sierra games. Having done away with your usual cluttered menu boxes, the game is left with a convenient visual mask for the complex and distinctively comprehensive options at your disposal.



And there's the referee's whistle for the kick off. Free kick for a foul awarded to Kolumbia. Distance from goal 2 yards. Santander is standing ready.

While a match is on you get the best graphics ever in a management game. You get constant scrolling commentary down the bottom and live action on top from different viewpoints.



but Gaertner makes the harmless rolling ball safe. yellow card for Luist (Brasilien) Penalty for a hand ball for Brasilien (unjustified) ELFMETER

It's also completely at odds with the traditional football management game screen: row upon row of text and permutations of attributes, with 'graphics' becoming almost a dirty word.

Few management games get you involved as quickly as this offering, yet there's more respectable reasons for it than just the graphics. On The Ball takes the decision-making process right down to the level where you analyse the morale and personality of each member of your chosen team. That's in addition to the usual statistical lead routine of clumping together the best players for each position, and so logic has far less of a role to play here than in say, Premier Manager 2, from Gremlin. Your team needs personalities that work together rather than skill alone, and you

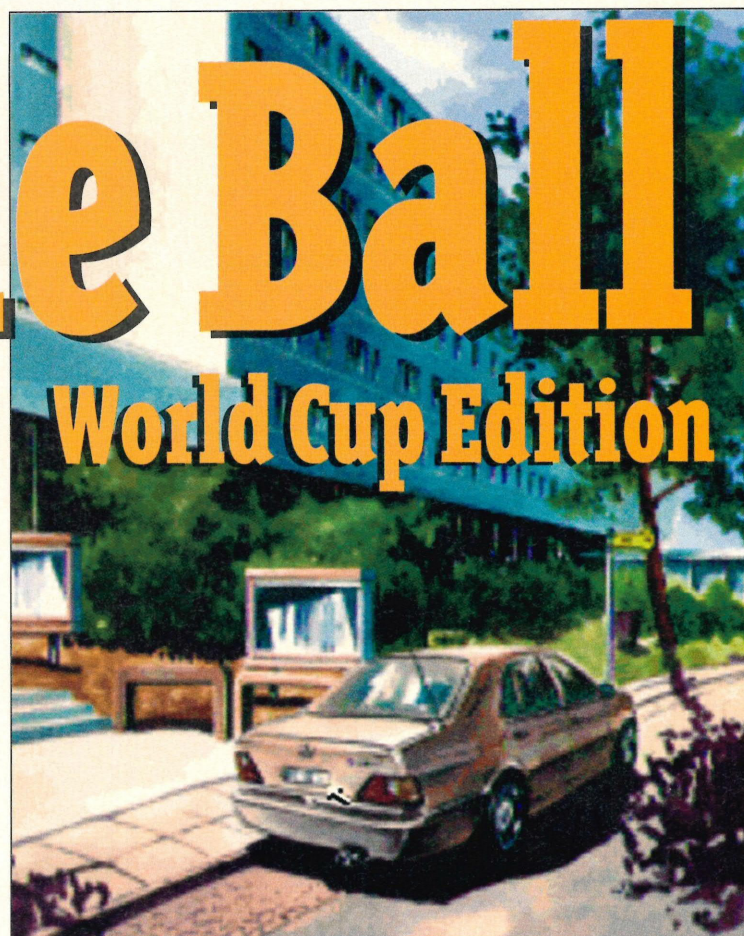
improve this with morale-boosting appraisals and press conferences — you even have to keep the substitutes from getting frustrated.

### You're booked!

As a manager, success is all about planning and your diary is the focal point of all activity.

You define your day-to-day routines in advance and this is where the strategy rests. Everything from training, team meetings, press conferences, eating, sleeping and time off needs to be balanced out. Sure, you improve your players by training, but too much or the wrong type of training will cause stress and ill-feeling later on. Moreover, the closer you get to the World Cup the more time you'll have to allocate to the media to keep your sponsors happy and fans loyal. Open days are great for fans, but as with press conferences it means wasting valuable pre-match training time. As you deal with the media through a multiple-choice answer system you can respond truthfully or falsely. Obviously, it doesn't help to lie about the chances of your team if you've lost the last three matches, but it might be worth fibbing about the high confidence of the team if there are injuries in the squad.

It's not just the media and players you need to look after though; you need to keep an eye on yourself so that when you check the papers each morning there are no scandals in the headlines. If you don't devote time to your family, for example, your wife will threaten to leave you. Such bad news will destroy your popularity and damage your mood, so devices like a taxi tour around the host city and a walk in the woods will keep you on form. Sleep is also vital, but go to bed too late and you'll oversleep which will disrupt plans for the next





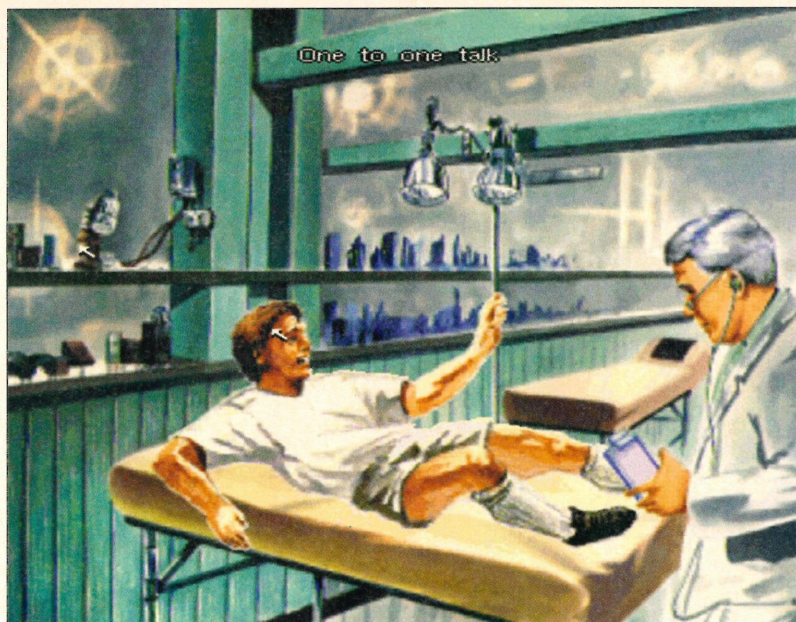
You'll kick yourself (quite literally, right) if you don't train each player properly (below).

day. If you're having a particularly bad day in fact, you can just go to sleep and forget about everything.

### Hat-trick

On The Ball requires an awful lot of lateral thinking if you're going to make it to the World Cup, especially if you decide to play the qualifying phase where friendly matches have to be organised and trips to watch future opponents must be financed and budgeted for. Then there's the random appearance of good and bad 'events' such as illness and cash awards which will require the sort of reactive mind which feels comfortable with games such as SimCity and Theme Park. This game expects you to contemplate for ages if you're to get the most out of it, which is probably why, rather unusually for this type of program, it includes a screen saver!

Support for up to four players is provided in the package and there are five difficulty levels which seem to affect the severity and frequency of the 'events' rather than the intelligence of opposing teams during matches. Actually, a nice touch is that while a match is in progress you can physically change the attitude and tactics of players in real time as if you were shouting out orders at them from the



benches. At half time you can even give one player a verbal slamming if they've been slacking on the pitch. Excellent.

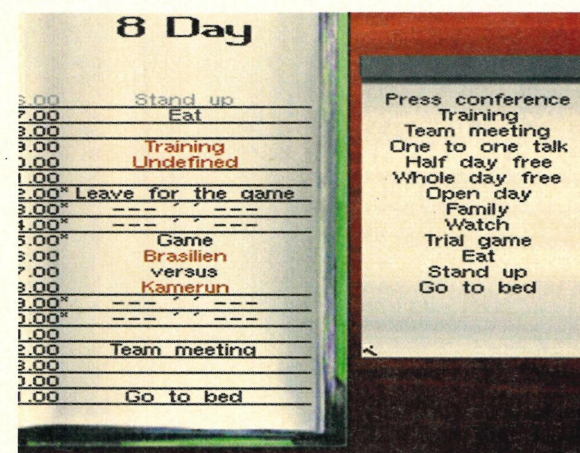
Should you feel inclined, On The Ball also features a separate editor mode where you can adjust every facet of the game data non-destructively. This offers precise manipulation of every player's skill and character from all 67 countries. There are 24 definable options in total.

### Decisions, decisions

The problem though with managerial games like this is that it's always very difficult to establish where you've messed up in your decision making — associated predicaments only tend to show up further into the game as your problems eventually start accumulating.

So unless you're doing something blatantly stupid like omitting a training schedule, it becomes quite difficult to learn from your mistakes as you would in real life. A log of your actions would have helped with this problem.

That aside, my only other problem with this game is the repetitiveness of the so called 'events' which are supposed to give the game its unpredictable edge. Just how many times would you expect a bomb alert to postpone training? I would consider

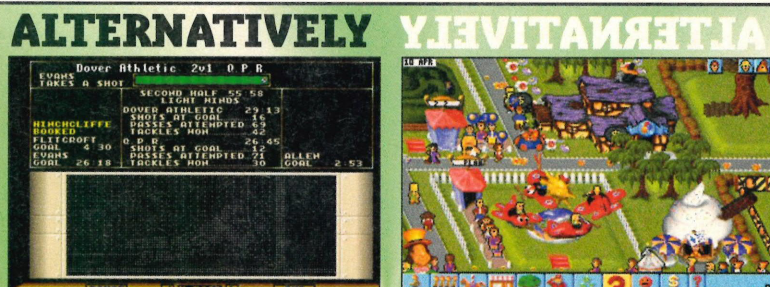


three to four times each game to be pushing against the bounds of realism, but then again who would have predicted a player getting assassinated for scoring an own goal in the real World Cup?

I hope it doesn't sound like I'm whinging, but I just hate it when obvious problems are overlooked, especially in good games such as this.

On The Ball is the most approachable and comprehensive game in its league, and has no doubt determined the standard for others to imitate.

■ Deniz Ahmet



**Premier Manager 2**  
Gremlin, £34.99  
Rated 7, Issue 29

Possibly the most popular football management game on the market. Includes all five leagues and all top cup and European competitions. It's certainly comprehensive with 486 combinations of playing tactics and is easy to get in to, but it feels cluttered due to functional type graphics. Still, at least it's fun on a 286.

**Theme Park**  
EA/Bullfrog, £44.99  
Rated 9, Issue 34

It's the best managerial type game around. The idea is build a fun-fair empire and pull punters away from competitors. Building the park is the fun bit and you can run riot with your imagination. The cinch is in keeping your creation profitable. Brilliant graphics, and many options make this game indispensable.



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SUBJECT TO AVAILABILITY



**A**t first glance, Overlord, developed by Rowan Software—the company behind the Battle of Britain simulation, Reach for the Skies—seems little more than an average flight sim. But with some flashy, albeit processor-hungry Super VGA graphics, the game invites the player to join the Allied Expeditionary Air Force and to play a vital role in the events leading up to the Allied invasion of Normandy: Operation Overlord.

### Take to the skies

Piloting any one of three aircraft, the Mustang, the Typhoon or the famous Mark IX Spitfire, you can fly a variety of ground attack missions including bridge bombing, knocking out rail yards and the wholesale destruction of radar sites. Occasionally you'll be diverted to fly as an escort to bombing missions and it's here that Overlord demonstrates that its air combat is just as fast and frantic as anything Pacific Air War has to offer.

In fact, swap the Pacific theatre for the white cliffs of Dover, the USS Yorktown for leafy-green Tangmere and Wildcats for Mark IX Spitfires, and Overlord has all the nuts-and-bolts that you'd find in, say, Pacific Strike.

### So what's new?

But even with the extensive campaign option, the external views, padlock views and variable levels of realism, you have to ask the question: is Overlord actually a good game or is it just a bog-standard air-combat sim pegging its hopes on some flashy SVGA visuals?

It's probably a bit of both. On the one hand, if you've already bought either Pacific Strike or 1942: Pacific Air War, there's nothing really new or dazzlingly innovative in Overlord that warrants you parting company with an extra £35. But that said, apart from Domark's SVGA



**Like Reach for the Skies before it, you can view the Overlord action from the cockpit or from any of the many, impressive external views.**



**In VGA the game moves very smoothly, even when you're diving down onto a factory complex over an occupied city.**

update of the classic AV8B Harrier Assault, there are no flight sims that allow you to fly in a screen resolution of 800x600 and this in itself—providing you don't have a steam-powered 386 PC—is a very attractive proposition indeed.

But good graphics, so they say, don't necessarily a good game make, and while there is the temptation to say that in SVGA Overlord struggles on anything less than a 50MHz 486, if you run the game in ordinary VGA on a low-spec machine, it's still as smooth as a pair of cashmere boxer shorts on Andre Agassi. It's just not as pretty.

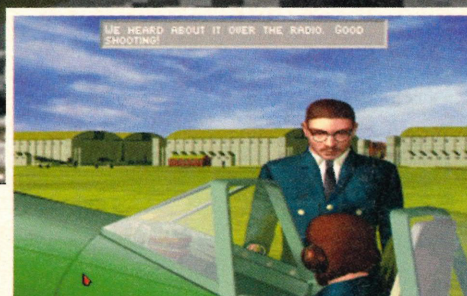
### Graphic gorgeousness

In SVGA the aircraft detail is quite superb, with each plane sporting historically correct markings. Unfortunately the same can't be said of the ground detail. Although there are some nice touches, like beaches and railway termini, Rowan seem to have spent a huge amount of time creating these wonderful Gouraud-shaded, texture-mapped aircraft but have completely neglected the bit that you land on and strafe.

From a distance the ground looks fine. No problem. But dive down towards it and despite Overlord's patent "adaptable viewing screen", which shrinks the size of the screen if the game speed is starting to flag, Overlord still suffers from the horror of Pacific Strike 'blocky landscape' syndrome. Needless to say, this is a bit annoying when most of the missions are either bombing or strafing runs.

### Viewing figures up

But while Rowan may have side-stepped realism as far as the ground detail and the cockpit layout is concerned, Overlord features not one, but two rotatable padlock views to help you sight and shoot down the enemy. Another neat touch is that you are given three chances or 'lives' in the game. If you lose your pilot another is quickly drafted in as a replacement and this means that you can learn from your mistakes. On



the other hand, if you do what I did, you can casually lose all three lives by making the same basic errors every time. It seems I can't fly these buckets like I used to.

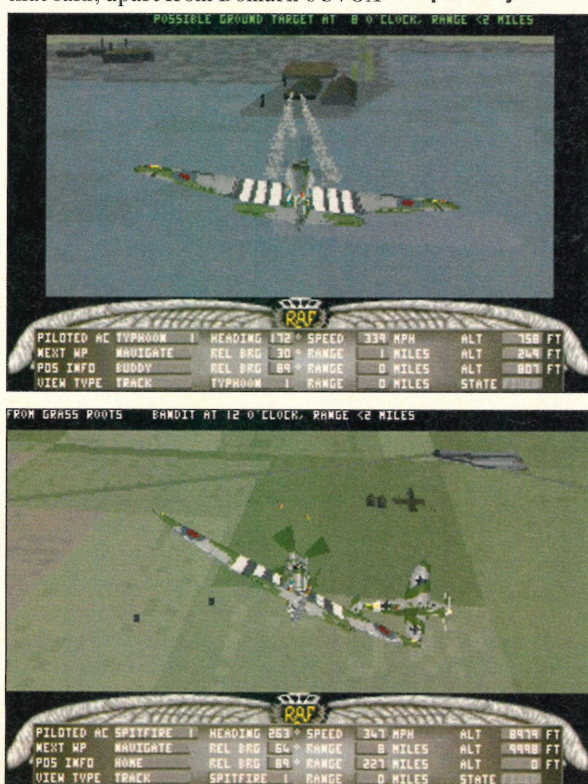
Just as literary pundits maintain that there are only eight major plots ever used in novels, Overlord reinforces the fact that there are only a limited number of genres used in games.

So, if you have a desperate need to add yet another prop-driven flight sim to your collection, then with its crisp SVGA graphics, Overlord is a refreshing alternative to both Pacific Strike and Pacific Air War.

While it doesn't do anything radical in terms of realism or game design, as a flight sim of the World War Two persuasion, Overlord acquires itself admirably. But remember, if you want to play in full SVGA glory, you'd better have at least a 50MHz 486 PC.

Consider yourself warned.

**■ Dean Evans**



**The best SVGA flight sim around today.**

**TECHSPEC.**  
**7**  
RATING

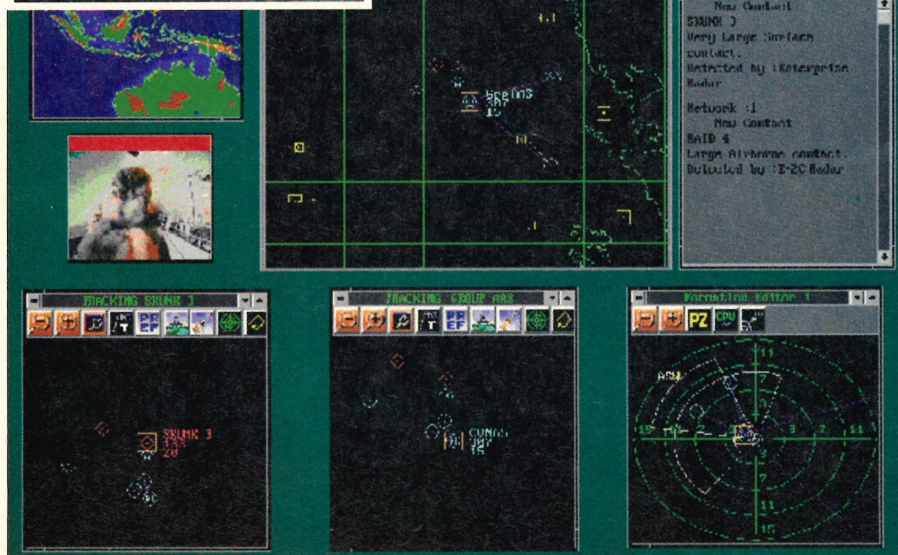
**Publisher:** Virgin  
**Price:** £35.99  
**Contact:** (081) 960 2255

**Minimum PC:** 486 SX  
**Minimum memory:** 4Mb RAM  
**Minimum graphics:** VGA/SVGA  
**Sound:** Ad Lib, Sound Blaster, Roland



# Harpoon 2

The original Harpoon was one of the best military simulations ever. Can Harpoon 2 better it?



The original Harpoon was famous for the inspiration it gave Tom Clancy in the preparation of his best-seller *The Hunt for Red October*. The database alone, Clancy reckoned, was worth about \$5,000 in reference books, and the novel was considered sufficiently realistic to make it on to the curriculum at the US Naval War College in Newport, Rhode Island. I reckon that if you can get to master Harpoon 2 you should be qualified to skip all that introductory stuff and just go straight out and take command of the main NATO battle fleet.

Harpoon 2 is simply massive. Massive in scope, detail, and above all complexity. Five years separate the new version from the original, and it's illuminating to compare the machine requirements: for the original all you needed was a 10MHz 286 with 640K memory; for the sequel Electronic Arts recommends a 486 with 8Mb of RAM. The hard disk requirement has gone up from under 1.5Mb to around 25Mb, so whereas before animations were minimal, now there's a comprehensive photo library plus video clips.

"Harpoon 2 is the most realistic commercially available military simulation ever made."

Things certainly have changed, but have they changed for the better? In general, yes. I have one reservation, which I'll come to shortly, but in the meantime, for the benefit of the uninitiated, here's a brief run-down of what it's all about. Harpoon 2 is a modern naval war game, but it's much more than that—it's the most realistic commercially available military simulation ever made.

For example, the vector-generated maps are actually more accurate than those issued by the CIA and the US Defense Agency, since information from these and other sources was rejected as not being up to scratch. The new improved photo-illustrated database gives you the equivalent of Jane's Fighting Ships on-line, and according to some serving naval officers Harpoon 2 plays more accurately than classified computer models used by the US military. If there's a more thorough piece of software on the market, I'd like to see it.

On the other hand, perhaps I wouldn't. Harpoon's greatest virtue, its accuracy, is also its biggest stumbling block. Just learning how to play is extremely hard work, and even veteran Harpooners will find it tough if they try to just jump in.

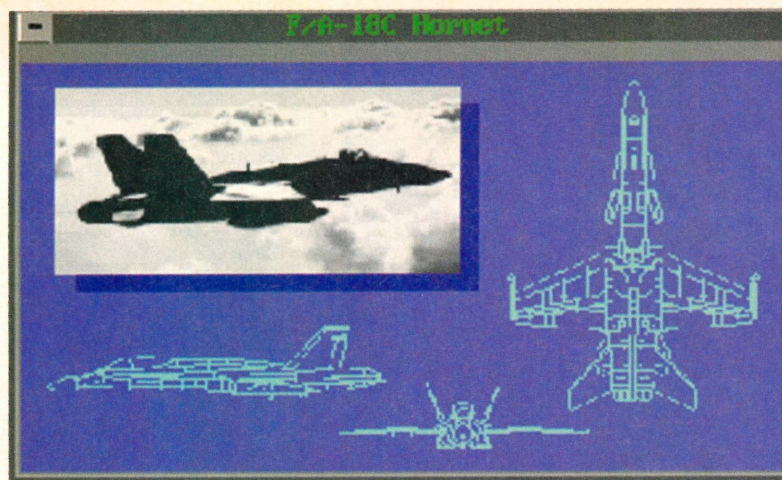
There are seven on-line tutorials, and I would strongly recommend ploughing through them all. Individual lessons will take you through such topics as navigation, weapon control and air ops. Although the controls are intuitive up to a point, and the meaning of most toolbar icons is pretty obvious, the skill of the game lies in making high level combinations and the interface must be thoroughly learnt.

**High and dry**  
Inevitably then Harpoon 2 is a little on the dry side. It operates in the realm of abstract strategy, there's no figurative action, and although the graphics are crisp and clear there's little in the way of eye-candy. You can tinker with the background colours using the palette provided, but essentially all you're going to see is little symbols moving slowly across your screen, blinking on when they come within sensor range and blinking off if one of your eponymous harpoon missiles strikes home. True, you get a little accompanying snatch of fuzzy video, but as it's always the same shot you'll probably want to turn it off after a while.

## High and dry

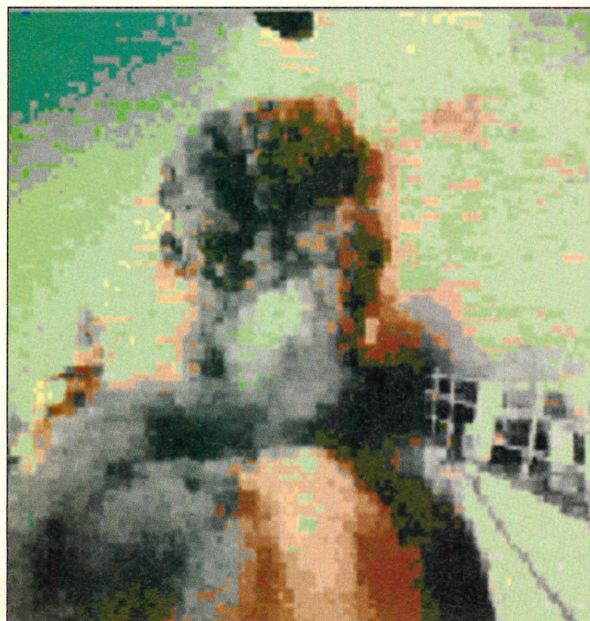
Essentially it lacks the human element. In each scenario you'll find yourself rubbing out hundreds of





**Top right: You don't need Windows to run Harpoon 2, but you'll be operating in a window-intensive environment. You'll have to digest the thick manual religiously if you're to get the most out of it with different sets of toolbars for each window.**

**Top left: The massive database contains details on every type of ship, submarine and aircraft in the modern global arsenal. The statistics are mind-boggling.**



lives at the touch of a button with clinical detachment. That's war for you.

Some of the scenarios, it has to be said, are a scream. Unfortunately the end of the Cold War has really screwed things up for war game designers. If you can't fight the Soviet Union any more, who can you fight? Well, there's always the EC.

The scenario 'Breaking the

Blockade' takes as its starting point the gloriously wacky premise that at some time in the very near future Jacques Delors and co will try and prevent the UK from leaving the Common Market by force.

Ludicrous as this may sound, it does at last afford one the priceless opportunity to send a modern British fleet not against the Russians but against our real traditional enemies — the French. This has to be the weirdest hypothetical scenario I've ever played, and, it must be said, one of the most enjoyable.

I think there are two reasons why Harpoon 2 works so well. One is simply to do with good design, the other boils down to a question of environment: most modern

naval combat is actually resolved at distance on computer screens.

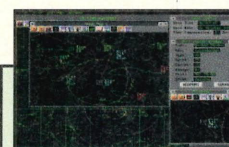
Harpoon 2

"Harpoon 2 is everything Patriot ought to have been. If you like your strategy neat, this is the business."

really does show it like it is, a classic example of that most hideous of acronyms, WYSIWYG (that's What You See Is What You Get). The crucial question in war games is the trade-off between accuracy and playability. In this case there's an acute imbalance in favour of the former, and the result isn't going to be to everyone's taste. If you want a bit of colour, excitement and action, forget it: what we have here is the triumph of mechanics over aesthetics. 360 Pacific tried to achieve the same effect on land with Patriot, and succeeded only in creating an impenetrable mess.

Harpoon 2 is everything Patriot ought to have been, and more. If you can take your strategy neat, this is the business.

■ Simon Shaw



Heavy going, but absorbing stuff.

TECHSPEC.  
8  
RATING

**Publisher:** Electronic Arts

**Price:** £44.99

**Contact:** (0753) 549442

**Minimum PC:** 386 (486/33reco) mouse

**Minimum memory:** 4Mb, 25 Mb hard disk

**Minimum graphics:** 512K VGA (Vesa)

**Sound:** Sound Blaster

## ALTERNATIVELY



**Seawolf**  
Electronic Arts, £44.99  
Rated 6, Issue 31

Seawolf puts you in charge of a single state-of-the-art submarine, which means, among other things, that you get the chance to fire off a lot of harpoon missiles. Highly atmospheric and less abstract than Harpoon 2, it's let down by the slowness of the action. Though H2 also has its longeurs, it's not so much of an issue in a pure strategy game.



**Great Naval Battles 2**  
SSI/US Gold, £39.99  
Rated 8, Issue

SSI's recent GNB update (why do most games on my hard disk seem to be sequels?) is a good alternative if you like your war games a little more colourful. Although it aims to be accurate, it's not hyper-realistic in the manner of H2; in short, it's more of a game than a simulation, while still offering a tough challenge even to experienced players.



# Castles 2



But then, that was how the game stood at the time of the floppy disk release well over a year ago.

So, let's face it, they've had plenty of time to make something of this CD release, and, on the surface at least, there's a lot that's new. Castles 2 has been given a thorough multimedia going over. There's full-motion video and illustrations of the design, construction and history of mediaeval castles; animations, cut scenes, music, and speech to bring the plots to life, plus the opportunity to recreate historic castles in the game. What somebody seems to have overlooked, though, is the thing that was most heavily criticised when the game first came out. If anything in this game could have done with an overhaul, it's the antiquated, in fact, downright hopeless,

combat system. The CD release was an ideal opportunity to put that right.

The fact that it hasn't been changed in the slightest smacks of a knee-jerk approach to CD conversions that is becoming all too common: long intro? Yes. Speech? Definitely. Change the game engine? Maybe not.

Still, as a game of mediaeval strategy, Castles 2 was always worth the cover price, and the CD embellishments have done it a power of good in the polish and atmosphere departments.

■ John Bennett

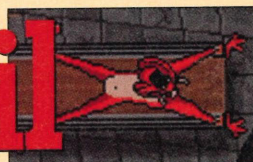
**It all looks so damn simple, this mediaeval politics stuff. But make too many enemies and all your hard-earned land will disappear overnight.**

## TECHSPEC

Minimum PC:	33MHz 386
Minimum memory:	1Mb, 520K free RAM
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster
Publisher:	Interplay
Price:	£39.99
Contact:	(0235) 821666

**7**

# Litil Divil



Litil Divil is one of those odd but compelling games which doesn't fit easily into any known genre. It combines exploration of a labyrinth with puzzles, tests of dexterity and beat 'em up action. The result is a varied, compelling arcade adventure.

The plot which joins all of these pieces together features Mutt, the 'litil divil' of the title, and his quest for the Mystic Pizza of Plenty. The maze he explores contains five levels, and each level contains rooms which must be completed before Mutt can progress to the next one. There are over 50 rooms in all. Most are difficult enough to give you a sense of achievement when you complete them; but a few are so easy that you wonder if you haven't simply wasted your money. The packaging contains templates to help you map your way around.

The floppy disk (reviewed in Issue 29) and CD versions are

virtually identical. If you have the choice, the CD is the better bet since it only requires 2Mb of hard disk space (the floppy version eats up 30Mb). Although it's hardly at the cutting edge of CD games, Litil Divil is good, solid fun with bags of humour and great animation.

■ Gordon Houghton



## TECHSPEC

Minimum PC:	386, DOS 5.0, MSCDEX 2.1
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Roland MT-32

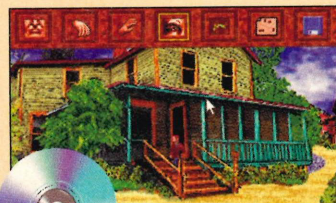
Publisher:	Gremlin
Price:	£34.99
Contact:	(0742) 753423

**6**

Shadow of the Comet is a thoroughly enjoyable and moody graphic adventure and if you don't believe me, you can always try out this month's CD demo first to make sure. You, John Parker, have come to the village of Illsmouth to investigate the astrological claims of the mad Lord Boleskine. Over the next three days, you will uncover the significance of the approaching comet, the odd behaviour of the locals, and the demonic influence that controls the village.

Combining tough, varied puzzles, weird and wonderful characters, an eerie soundtrack, and close up cut scenes, it's a hard task just to survive the first of the three days.

In fact, Shadow is so mean and moody — without being as action based as Alone in the Dark — that it even gets the official seal of approval



from the H P Lovecraft estate.

As far as the CD version goes, you get the usual long intro scene and extra speech. But, the most useful addition to the game is mouse support. Or it should have been, anyway. Somehow I don't think Infogrames has quite got its head round the idea of a point and click adventure yet. You can't just click the mouse and send the hero wandering to a point on screen, you have to guide him every step of the way — which is a clumsy approach.

But still not so clumsy as to spoil a first class, attractive and challenging graphic adventure. Oh, yes. It's cheaper than the disk-based version, and you get a free mouse mat, too...

■ John Bennett

## TECHSPEC

Minimum PC:	33 MHz 386
Minimum memory:	1Mb, 520K free Ram
Minimum graphics:	VGA
Sound:	Ad-Lib, Sound Blaster

Publisher:	Infogrames
Price:	£34.99
Contact:	(071) 738 8199

**7**

# Shadow of the Comet



# The Grandest Fleet



**T**he Grandest Fleet is a naval strategy game which is just about competent as far as it goes, but unfortunately it doesn't go nearly far enough. As you might expect, historical and random scenarios are provided, but realism is such a secondary issue that there's actually very little difference between any of them.

Your aim is to take over different enemy cities, which are dotted about on various islands. At the start of the game you have a point allocation with which to 'buy' a fleet, and once you've made your purchase you can begin to manoeuvre your pieces over a large-scale hex grid before engaging in a bit of somewhat rudimentary combat.

You can add to your fleet if you have shipyards in your cities, and if you also have airfields you can use bombers. There are, however, no land units — an omission which entirely characterises Grandest Fleet's lop-sided approach. You may not be able to raise any infantry in your cities, but you *can* build an opera house. Very useful! Where have the designers got their ideas from?

The answer is from a variety of sources, and not all of them are out of the top drawer. There may be a hint of Civilization in the emphasis on cities, which can't be entirely a bad thing, but there's also a strong echo of the designers' own recent horror, Conquered Kingdoms, in the combat routines, a game so awful that it had me reaching for the smelling salts. The game it most resembles is Empire, which itself occupies no more than a mid-table position in the strategy league.

This is a game which contains some interesting ideas, but in practice it's sadly lacking. On closer inspection The Grandest Fleet turns out to be no more than A Fairly Leaky Pedalo.



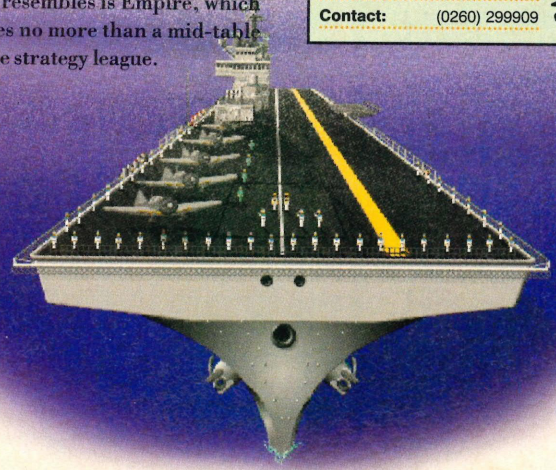
■ Simon Shaw

"The Grandest Fleet turns out to be no more than A Fairly Leaky Pedalo."

You can either generate a random scenario or play an historical one such as the hunt for the Bismarck, though any resemblance it bears to reality will be purely coincidental. While The Grandest Fleet certainly cannot be faulted for variety, unfortunately it's no compensation for the lack of decent gameplay.



• TECHSPEC •	
Minimum PC:	386
Minimum memory:	2Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster
Publisher:	QOP/Mirage
Price:	£44.99
Contact:	(0260) 299909



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Screenshots from IBM PC



# Chaos Engine

Steam powered computers? Members of the Victorian gentry running round with high calibre weapons? Sounds a bit chaotic to me...

If you want those balls of white hot plasma to stop coming at you, shoot the computer thing in the middle.

**A**rcade games used to be something of a rarity on the PC, but that is no longer the case: platform games, beat 'em ups and pinball simulations are two-a-penny these days. Sadly, what you don't see too often is a decent shoot 'em up — perhaps the games manufacturers think that PC owners are too cerebrally inclined to appreciate a bit of mindless destruction.

I say "WRONG!" If you have only 15 minutes to spare, what better way to spend it than on a good blast? After all, there are times when you really don't want to get bogged down in something like Sim City 2000 or Ultima VIII, however good it is. To the rescue comes the Chaos Engine, a fast-paced, top-down perspective action game in the Alien Breed mould.

The aim of the game is to shoot your way through 16 levels of vicious mutant crea-

tures, collecting all manner of bonuses and power-ups as you go. In this respect it's no different from any other shoot 'em up, but there's one thing which really sets it apart from other examples of the genre: you have to use your brain. Not only must you shoot everything which gets in your way, but there are also several puzzles which have to be solved along the way. For example, you may have to get from one end of a corridor to the other, but a jet of scalding steam from a nearby pipe is preventing you from doing so. What you have to do in this case is shoot the pipe further down the wall so it breaks and causes the steam valve to shut down. Simple. Or so it seems once you've already figured it out.

This mental element doesn't make the action any less frantic, however; with hungry monsters coming at you left, right and centre your reflexes need to be honed to perfection.

## Chaos theory

So what on earth is a Chaos Engine when it's at home? Most arcade games have a plot, if a very rudimentary one, though in most cases it has little relevance to the actual gameplay. The Chaos Engine's plot, however, is not only well thought out, but it's fresh, original and adds a

very distinctive

atmosphere to the game. The game has obviously been heavily influenced by William Gibson and Bruce Sterling's 'steampunk' novel, The Difference Engine. Charles Babbage, a Victorian mathematician, attempted to build a computer, and the novel explores what might have happened to Victorian society had he actually succeeded.

The game has a similar scenario, though in this case the computer (the Chaos Engine) not only worked, but also attained sentience as soon as it was switched on. Not content with taking over the mansion of its mad professor inventor, the Chaos Engine emitted a cloud of chaos which warped nearby humans and animals into dangerous mutant monsters. The surviving locals have decided that something must be done (surprise), and have hired two mercenaries to break into the mansion, kill the mutants and, ultimately, destroy the computer itself.

The Chaos Engine is, essentially, a two player game, with you taking control of one character and a friend taking control of the other. Solo players haven't been ignored, however: in this mode the computer handles the second character and the intelligence of that character is so good that you could almost believe that you were playing with a human partner.

Your first task is to select a character. There are six to choose from, and each has





# A FOREST

This is where you start out — the forest surrounding the mansion where the Chaos Engine is housed. The first level is reasonably small, designed to get you into the swing of things without killing you off too quickly. At this stage the monsters are fairly easy to kill (just stay out of the way of their slow moving bullets) and there are no puzzles to speak of. To make it through in one piece, shoot the mutants, shoot the nodes to activate them and pick up as much money as you can stuff into those deep pockets of yours.

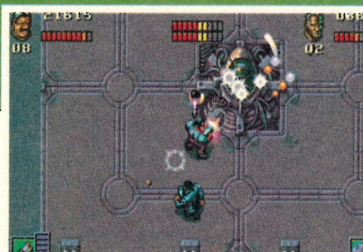
The exit takes you, surprise surprise, to the next level. If, of course, you live that long, that is.

Monsters. Shoot them before they shoot you. Simple.

A treasure-filled bonus area. These become harder to break into the further you progress.

There are several nodes on each level — shoot them to activate them and thus clear a way through to the exit.

You and your partner. You can't hurt each other, so there's no need to worry about stray shots.



The Chaos Engine — your ultimate goal and boy, does it chuck a lot of ammo at you.



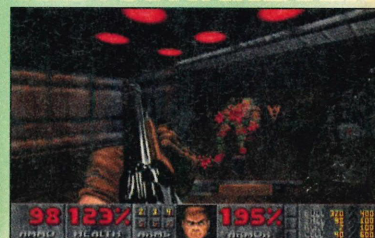
After you've completed the forest area, it's on to the workshops where large red hulks lurk.

## ALTERNATIVELY



**Alien Breed**  
Team 17, £29.99  
Rated 4, Issue 27

This game was huge on the Amiga, but the PC was disappointing. It's similar in style to Chaos Engine, except that in this case you're battling aliens. AVM, which converted it to PC, has done a much better job with Chaos Engine, thank goodness.



**Doom**  
Id/Transend, £34.75  
Rated 9, Issue 29

Doom looks nothing like The Chaos Engine, but it's another game which is brilliant when played against a friend (or more). Fast, furious, atmospheric and extremely violent, Doom is great fun and as a way of relieving frustration, it can't be beaten.



## THE STEAM TEAM



### Brigand

A mediocre performer in most departments, the brigand does, however, pack a big weapon and has a good selection of specials to utilise.



### Gentleman

He may live in luxury, but the gentleman is no softie and knows how to handle a weapon. The ideal choice for the CPU controlled character.



### Mercenary

A fair performer in all departments, the mercenary is another good CPU character. However, he isn't really as hard as he likes to think he is.



### Navvie

He's not particularly fast and he's certainly no Einstein, but the navvie is tough and packs a meaty weapon. He is one of my game favourites.



### Preacher

The preacher is fast and intelligent, and useful in puzzle situations, but handicapped by a lack of decent weaponry. At least he has God on his side.



### Thug

Slow and stupid, the thug is hardly ideal as a computer controlled partner, but being pretty tough as he is, he can take a hell of a lot of damage.



Every other level you get the chance to upgrade yourself. You can boost your own attributes or power up your weapon, but the number of upgrades available depends on how much money you've collected.

his own strengths and weaknesses. One character might be strong and tough but a little slow, whilst another might be very intelligent but can take only the slightest amount of damage before he keels over. On your first game, I'd recommend picking a tough character such as the navvie — you'll be able to get further.

### Up your arsenal

In addition, each character wields a different weapon, varying from the pistol carried by the gentleman to the huge rocket launcher which the navvie lugs around. Some weapons are more destructive than others, and this is another thing you should take into account when choosing.

And then we have the 'specials': additional kit carried by your men which could consist of anything from a map of the level to a Molotov cocktail. Again, these affect the desirability of

the characters — the thug can carry only one special, whilst the brigand has three at his disposal. Specials are limited though, so once you've used them, that's it, until you find some more.

Then it's on to the game. Monsters appear: you kill them; puzzles stop you in your tracks: you solve them; money, power-ups, specials and keys lie on the ground: you pick 'em up and use them. It's that simple. Simple but not dull. The pace of the game is so well judged that you always have something to occupy you, whether it's dodging a missile or opening a secret room.

The 16 levels are split into four different areas: the forests surrounding the mansion, the workshops just outside, the mansion itself and, finally, the cellars which house the Chaos Engine.

The frequency and difficulty of the puzzles increases as you progress, and likewise, the monsters get tougher, quicker and more dangerous.

There are no end of level guardians to battle, unless you include the Chaos Engine itself which is extraordinarily difficult to put off-line. Instead, each area contains several 'nodes', and you have to shoot them before the gate will open and let you in to the next level.

Obstacles which get in your way can usually be removed by picking up keys. Useful items such as specials, power-ups and money can also be found in this way.

### Full steam

Chaos Engine is, in short, an excellent game. The graphics are crisp and uncluttered, the sound effects for the weapons are suitably meaty and there are no obvious glitches.

The game does have one chink in its armour however — at 16 levels it's a bit on the short side.

Even so, it's not a game you'll play once and then discard, because there are so many secret areas to uncover and you'll probably want to try playing it using the different character combinations available.

More to the point, it's one of the best two-player games on the PC — only Doom could be said to be better.

Even if you wouldn't normally consider buying this sort of arcade game, I'd recommend the Chaos Engine because firstly, it's rather more intelligently put together than other games of its kind, and secondly, it really is damned good fun.

Why not suck it and see?

■ Cal Jones

"Sound effects for the weapons are suitably meaty and there are no obvious glitches."



TECHSPEC  
8  
RATING



"Short, but oh so very sweet."

Publisher: Renegade/Bitmap

Price: £32.99

Contact: (071) 481 9214

Minimum PC: 25 MHz 386, MS-DOS 5.0

Minimum memory: 2Mb

Minimum graphics: VGA

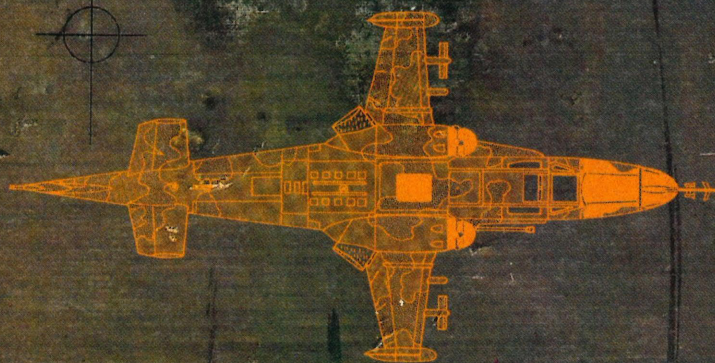
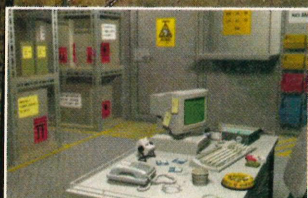
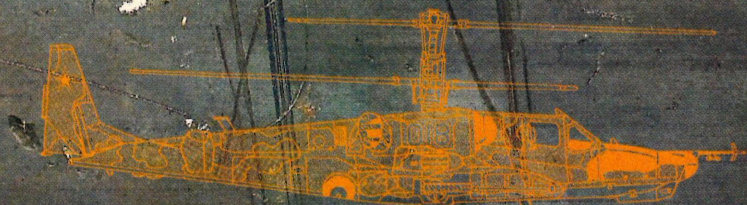
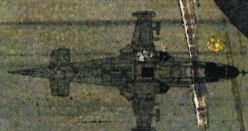
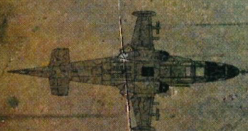
Sound: Ad Lib, Sound Blaster



# KA-50 HOKUM

A HELICOPTER FLIGHT SIMULATION

OVER THE SOUTH CHINA SEAS



SCALE 1:72

FORMATS: IBM PC AND COMPATIBLES

FIRST CLASS PILOT WANTED-APPLY WITHIN

VIE-94

Every day in the South China Sea up to 200 ships slow to as little as 15 knots to pass through sea-lanes less than a mile wide ... leaving them open to attack from pirates. Valuable cargo is constantly stolen. Sometimes lives and whole ships are taken. Understandably, not everyone is happy about the situation. Some corporations are prepared to spend vast sums of money employing people to protect their investment. People like you. From SIMS, the team behind the critically acclaimed AV-8B Harrier Assault, comes a simulation of phenomenal proportions. Fly four of the world's most advanced helicopters ...

\* The Kamov Werewolf KA-50 Hokum \* The Kamov Hip HI-8 \* The Bell Super Cobra AH-1W \* The Westland Army Lynx

... each one simulated to an unprecedented degree of realism with solid texture-mapped detail and authentic flight models tested and approved by experienced pilots. Take advantage of the unique two-player co-pilot feature, and the most advanced strategic battle-planning system ever implemented in a combat simulation. Spectacular camera views bring to life the full explosive impact of combat in the air and over Gouraud-shaded terrain. But do you have the nerve and ability to command a four-strong fleet and wage war against the pirate armies?

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Virgin



## Privateer CD



**A**n Elite beater or just a trumped-up Wing Commander clone? Whatever you decide, you can now play Origin's Privateer on CD-ROM, with its familiar Kilrathi aliens, pirates, mysterious alien plot and trading bits.

After inheriting a battered and pock-marked Tarsus freighter, you have decided to become a privateer, a have-a-go entrepreneur making money wherever and however you can. The main way you can

do this is by trading: buying low at star A and then selling high at star B.

But as trading foodstuffs and luxury items can get dull and repetitive, quicker money can be made by accepting a variety of combat missions on offer at the bases.

Each base has a computerised bulletin board, where you can choose paying missions that range from simple cargo runs to dangerous nav-point patrols.

The aim is to make pots of cash, upgrade your ship's weapons and to complete the hidden subplot. This subplot, a linked collection of missions, is presented using Wing Commander-style talkie bits and takes you right across the Gemini sector, battling bad guys in a desperate search for an alien arti-

fact and a mysterious grey spaceship.

Of course, Privateer CD isn't just a straight reissue of the original game, the CD also includes the speech pack and the Righteous Fire mission disk which gives you 26 brand new missions all linked together in a shiny new storyline.

But how good is it? Well, while it is a superbly presented game, with its ageing bitmap graphics and dated combat engine, it doesn't rank up there with X-Wing.

But if you can't hold out for TIE Fighter, Wing Armada or Inferno, it's a game that will easily keep your trigger-finger pumping and your mind distracted. I just don't know for how long.

■ Dean Evans

TECHSPEC	
Minimum PC:	486
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Ad Lib, Sound Blaster, Pro Audio
Publisher:	Electronic Arts
Price:	£44.99
Contact:	(0753) 549442

RATING 6



**T**his year's World Cup, the spiralling popularity of fantasy football leagues and the hype about the new Premiership season all make it virtually inevitable that a rash of management simulations should appear on the PC. Tactical Manager claims to be the most sophisticated and realistic of the lot.

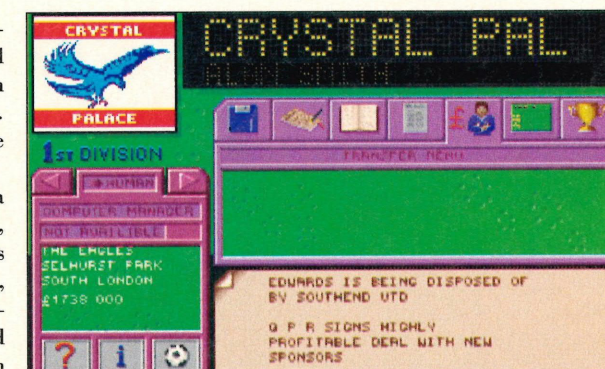
These are pretty hazy terms, of course. There are certainly an awful lot of footballers to manage (3,740) and playing parameters to take into account (41,480), as well as a whole range of management activities. These include eight kinds of game (friendly, challenge, league, FA and League Cups, and the three Europeans), transfer dealings, wage negotiations, pay bonuses, and extras too.

If you covet the suede overcoat and flat cap of the true footy boss, you'll also love the reams of statistics on offer — all of which can be printed out. This nerdy but impressive feature is certainly worthwhile

if you want to go completely insane and build up your own management dossier. (Let's be honest, some of us do).

There are just a couple of complaints, though. The first is against the manual, which is poorly structured, long-winded and doesn't contain icons or screen shots.

You have to plough through thousands of words before you can play the game in the way the programmers intended. The second is that if you support a Premiership side you can't choose it straight away because your management rating isn't high enough. This is fair enough as far as realism goes, but for many the appeal of these simulations lies in running the club you support.



Fifty-six miniature animations add atmosphere to the traditional text descriptions of the action.

ping to begin with because of the wealth of options and data you have to deal with; but once you learn to cope, the strategic elements are strong enough to keep you hooked for a long time.

■ Gordon Houghton

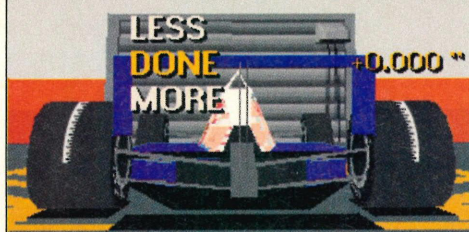


TECHSPEC	
Minimum PC:	286, MS DOS 3.3
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Disney Sound Source, Sound Blaster
Publisher:	Kompart UK
Price:	£34.99
Contact:	(0438) 840003

RATING 7



## STAGGER



Once in the land of racing games, there once was a great champion called Formula 1 Grand Prix which ruled all racing games, and everybody loved it. Then came a new pretender to the crown of high speed computer thrills — IndyCar. The battle lines were drawn, and people argued mightily about which was better.

Thing is, they were both excellent, and nothing's got the better of either yet. But it's been a while since they came out, and chances are they're now languishing at the back of your games collection somewhere. Which is a shame, or so reckons Virgin, which has just released an add-on to IndyCar with the intention of reviving interest in their classic game on wheels.

The expansion pack contains seven new courses, which means you'll now have as many as F1GP players, and they're mean buggers too. Vancouver and Australia in particular had me going for ages before I made a decent lap, and I used to trounce the opposition on some of the earlier circuits. There are a couple of straight for-

ward races in the kit, but there's more than a few new ovals here.

Apart from the new locations, the expansion pack also updates your original game, and although it doesn't add anything new, it'll help if you suffered memory problems in the earlier version.

To top it all off, Virgin have thrown in a couple of little utilities, Cut Replay (you can edit highlights of your favourite races and save them to disk) and Show Settings (which allows you to print out custom car settings). Look out for the car paint kit, due to be released in August/September, which includes amongst other things (at last), the Indianapolis 500 track.

If I had one niggle, it is to wonder why Virgin haven't ironed out a few of the things that just gave F1GP the edge for some folks, like the fact that in two player mode you cannot run a full season head-to-head. Surely it wouldn't have been that difficult when putting together a new version to look at some of the details in F1GP and think "now how could we do that?", particu-

larly with F1GP2 (what a mouth-full!) due next year.

So, as you're pelting down the straight at close-on 200 mph, desperately trying to catch the race leader, you might well find yourself saying "I'm bored of this track. I fancy something new."

Lo and behold, there's the IndyCar Expansion Pack to satisfy your soul. Just don't expect it to add much new to the actual game, as if it needed much.

■ Martin Klimes

## • TECHSPEC •

Minimum PC: 25 MHz 386, plus orig game

Minimum memory: 4Mb RAM

Minimum graphics: VGA

Sound: Ad-Lib, Sound Blaster, Roland

Publisher: Virgin

Price: £17.99

Contact: (081) 960 2255

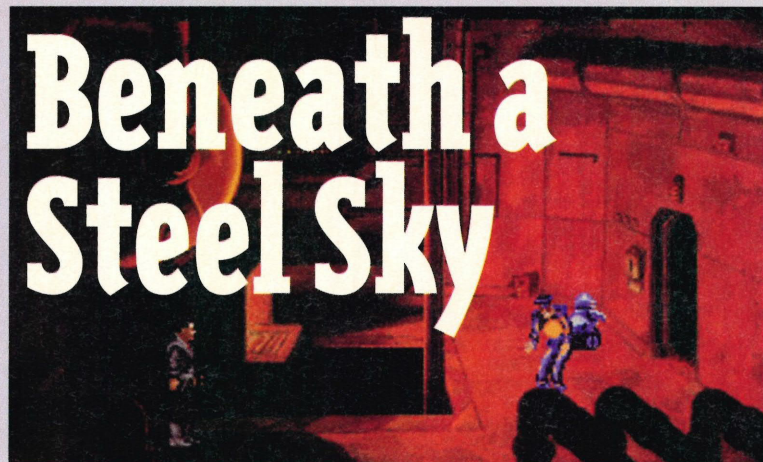
RATING

6

DISK ONLY



# Beneath a Steel Sky



Beneath a Steel Sky received a lot of praise when it was released on floppy disk earlier this year, so its reappearance on CD comes as no surprise. The game is set in a futuristic city state where access to the various areas is determined by social status, trigger happy security guards that patrol the streets and a giant computer, LINC, which keeps tabs on everyone. The hero, Robert Foster, has been kidnapped by the security forces, but manages to escape when their

perfect for this darkly atmospheric game, whilst all the characters have strong and distinctive personalities. Add to this a decent selection of puzzles, a simple, unobtrusive and thoroughly intuitive interface and a bit of light relief in the form of some deliciously black humour and you get one of the best adventures to surface in the last 12 months.

As you might expect, this CD version has had the full talkie treatment.

helicopter crashes. Accompanied by his robot friend Joey, Robert must find out why he is being hunted and discover the sinister truth behind LINC.

Steel Sky is notable for its superb graphics, which were provided by the renowned comic artist Dave Gibbons (Watchmen, Give me Liberty, Alien Vs Predator and others). The superbly detailed, moody backgrounds are

Despite the fact that Revolution hasn't followed the trend of hiring famous actors to provide the voices, the dialogue sounds good. The only thing which is a bit odd is that, whilst the adventure is set in Australia, there are a wide range of accents: Brummie, Scouse, French and American. Even so, the various voices work well together, and add humour to the game.

If you've already played the floppy version, I don't think there's much point in forking out another fifty sovs just to hear the dialogue. If, on the other hand, you haven't played it, then you're missing out on a great game: go out and buy yourself a copy now. You won't regret it.

■ Cal Jones

## • TECHSPEC •

Minimum PC: 386 with CD-ROM

Minimum memory: 4Mb

Minimum graphics: VGA

Sound: Ad-Lib, Sound Blaster, Roland

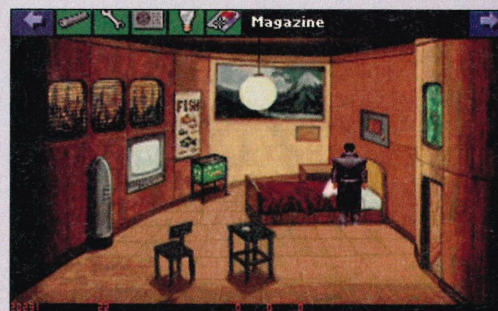
Publisher: Virgin

Price: £49.99

Contact: (081) 960 2255

RATING

8



GAMES



# MICROPROSE SPORTS CD EDITION

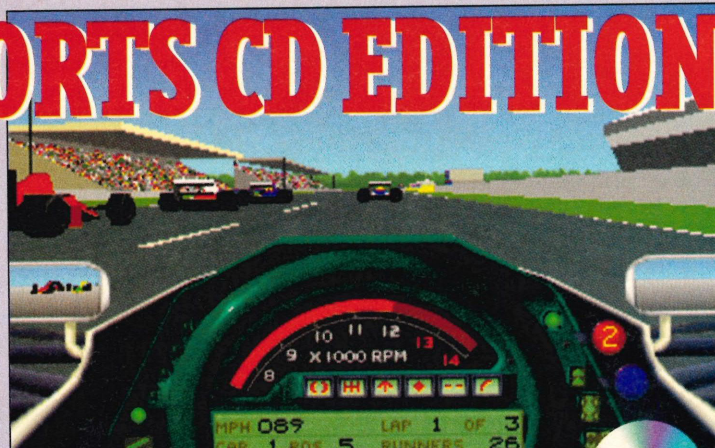
**M**icroProse is certainly earning my admiration with its CD re-release double-packs. Like the Sid Meier CD Edition below, the Sports CD bears two excellent simulations of yester-year which have aged hardly a jot, and while these CD versions don't differ in any way from the originals: it's the price — £15 per game — that's the thing.

Formula One Grand Prix is a superbly crafted simulation of motor sport. The 16 circuits driven during the Formula One season have been finely reproduced in vector graphics so that you can tear them up in the comfort of your living room, playing either in full simulation mode or a

more arcadey style. The 3D graphics are terrific — fast and very detailed. The sense of speed is very convincing, especially with the authentic roar of the engine coming through the Sound Blaster.

As you'd expect from a MicroProse game, there are all the game options you could wish for, all sorts of tournaments, a practice mode, a modem and serial link head-to-head mode. The manual is also superbly presented and laden with detail and background info.

The other half of the deal is David Leadbetter's Golf. Most PC golf games take a hyper-scientific approach to the sport and few more than this one. The player gets icon-control over club selection, shot strength, direction, the lot. The manual is full of motion graphs and vector diagram. But in spite of its sophistication, it is not overly daunting for casual



## • TECHSPEC •

Minimum PC: 386-40, MS-DOS with CD-ROM

Minimum memory: 4Mb

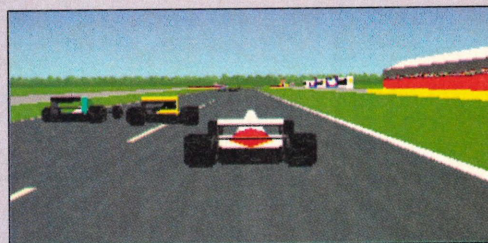
Minimum graphics: VGA

Sound: Ad-Lib, Sound Blaster, Roland

Publisher: MicroProse

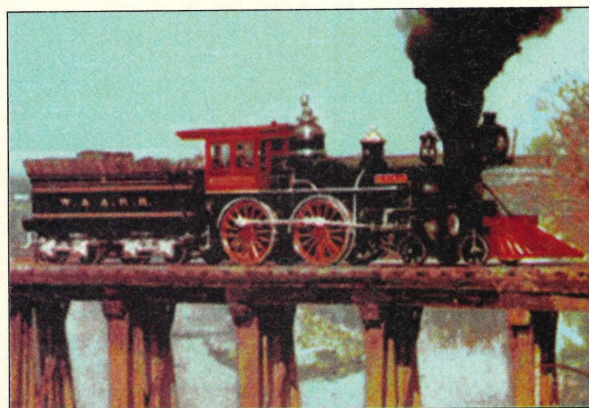
Price: £29.99

Contact: (0454) 326532



players. Everything you could want from a PC golf game is here. A stack of courses, full practice options on putting greens, driving ranges and bunkers, stroke-play, matchplay, medal and skins tournaments, you can even play against a mate over a modem link-up! Definitely recommended.

■ Paul Glancey



**O**ver the years since he helped set up MicroProse, Sid Meier has exhibited an amazing skill at creating unusual real-life simulations which are, without exception, terrific fun to play in. As part of MicroProse's new scheme of re-releasing duets of their old classics on CD, it has bundled two of Mr Meier's award-winners, Railroad Tycoon Deluxe and Civilization on this one disc. Railroad Tycoon takes you back to the dawn of the Steam Age, loans you a million dollars and lets you set up a railway in North or South America, Europe or Africa. The idea, at least to begin with, is to make money by identifying a spot where there's a regular supply of goods (passengers, mail, coal, whatever), then building a railway to take those goods somewhere where they're in high demand.

You must plan your route carefully, and employ engines with enough loco-muscle to be able to pull the required loads.

Things do get more complicated when other businessmen set up competitive rail networks which you can invest in and eventually buy out. You can also improve your own

service by investing in more efficient engines as they're invented, and increasing trade to your stations by building post offices, hotels and freight depots in them.

Civilization is a similar species of game, but here you're given a small band of primitives whom you have to develop. Send them into the wildernesses of neighbouring countries and make contact with other races, set your civilisation's thinkers the task of coming up with the secrets of, say, the wheel or mathematics. New concepts lead to new inventions which help your people protect themselves or travel further, faster. Even-

tually you end up dispatching diplomats and trading caravans to distant shores to set up treaties with foreign governments.

Like Railroad Tycoon, Civilization becomes increasingly absorbing the more you play. So if you haven't yet discovered the delights of either of these to games to date, you could do far worse than trying this package. Two first-class titles for £30.

■ Paul Glancey

## • TECHSPEC •

Minimum PC: 386-25, MS-DOS with CD-ROM

Minimum memory: 2Mb

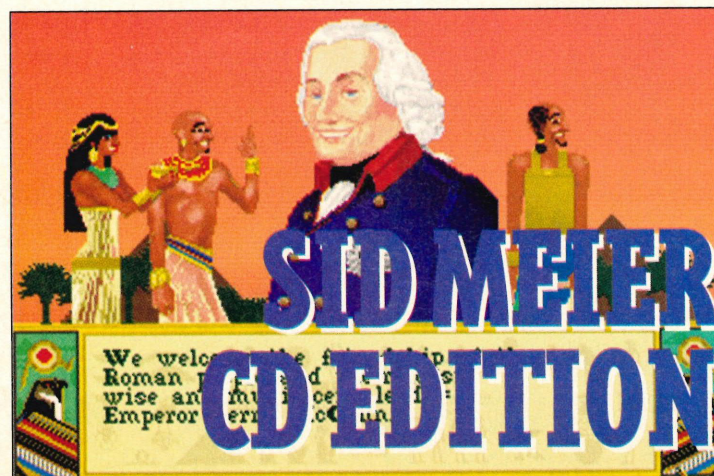
Minimum graphics: VGA

Sound: Ad-Lib, Sound Blaster, Roland

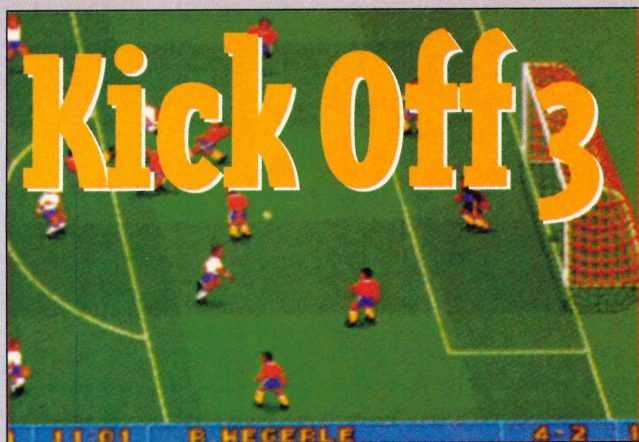
Publisher: MicroProse

Price: £29.99

Contact: (0454) 326532







**D**o you know, I spent a whole afternoon playing Anco's football flagship, Kick Off 3, and I had no fun whatsoever? None at all. I wasted a whole afternoon on this digital dross and while in my opinion FIFA Soccer continues to soar to sporting heights, KO3 plumbs new gaming depths, scraping the very bottom of the footballing barrel.

Like every other football game released during the past month, Kick Off 3 is yet another World Cup bandwagon jumper. It plays a passable game of football, certainly, but I'm afraid this is the only positive point I can make about it. Compared to the likes of FIFA Soccer and World Cup USA '94, KO3 is visually, aurally and even tactically, inferior. I've played games of table football that have been better and more atmospheric.

it, is jerky, unrealistic and robotic.

The sound isn't much better, either, consisting of the odd thump when you kick the ball and a sampled 'ooooh' from the crowd. In fact, the crowd seems to roar enthusiastically when you come close to scoring, but stay resolutely silent when you actually manage to slam the ball into the net. No matter how spectacular the goal, in KO3 it'll be greeted with complete silence. It's almost as if the crowd all pop out to the loo at the same time and miss it.

But it gets much worse. Dino Dini, the programmer of both Kick Off and Kick Off 2 has had nothing whatsoever to do with KO3 and as such the game possesses none of the qualities of the original: the goalkeepers often dive the wrong way, allowing in soft shots that even my granny could save, you can't swap effectively

between players and worst of all, an Argentinian sub once came on to the pitch wearing the home kit (white and blue striped shirt, white shorts) even though the rest of the team were playing in the away strip.

Yes, although Kick Off 3 has all the usual football features (multiple competitions, action replays, etc) it also has more bugs than a Brazilian rainforest.

"Kick Off 3 is unique in conception" says the blurb on the box. Too right. I haven't seen a football game this awful for a long time. "Barge pole" and "don't touch this with a". Not necessarily in this order.

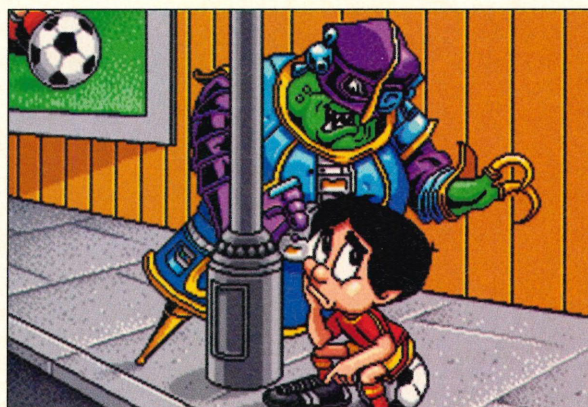
■ Dean Evans

• TECHSPEC •	
Minimum PC:	386
Minimum memory:	4Mb RAM
Minimum graphics:	VGA
Sound:	Sound Blaster
Publisher:	Anco
Price:	£29.99
Contact:	(0322) 292513

RATING

2

Gooooaa!!!! With a spectacular kick, Romario scores the winner.



Soccer Kid has 15 levels with bonus stages rewarding skillful play.



• TECHSPEC •	
Minimum PC:	386 MS-DOS 3.3 (14Mb free)
Minimum memory:	4Mb
Minimum graphics:	VGA
Sound:	Sound Blaster
Publisher:	Krisalis
Price:	£29.99
Contact:	(0709) 372290

RATING

6

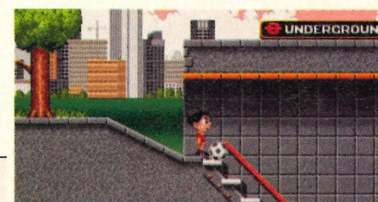
The action is as strange as the plot. The basic aim is to progress through each scrolling level as quickly as possible, collecting bonuses and dealing with enemies along the way. The weird part is that you have a football in your control at all times. The footy is put to a range of uses, from killing baddies and collecting goodies to balancing and bouncing high in the air. If you lose a football you can always get a new one, but forfeit bonus points as a result.

Soccer Kid starts the game with three lives, each with two units of energy. Extra energy, lives, stamina, time, invincibility and speedy boots are collected along the way. The game's major appeal lies in the variety of the Kid's movements. Without the ball he can run, jump, duck, break through walls and thin platforms, swing

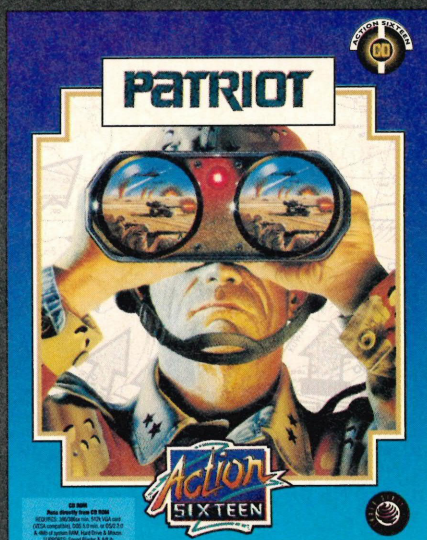
and perform sliding tackles. With the ball he can kick (soft, hard, overhead or high in the air), perform tricks, chip, do two types of header, land on the ball, roll on it, and swap control between feet.

The graphics and sound are both mediocre, but bonus stages, two difficulty levels, a load/save game facility and the option to change the character's strip are some compensation. Soccer Kid is an interesting, original game which rewards perseverance, and should appeal if you're looking for something unusual.

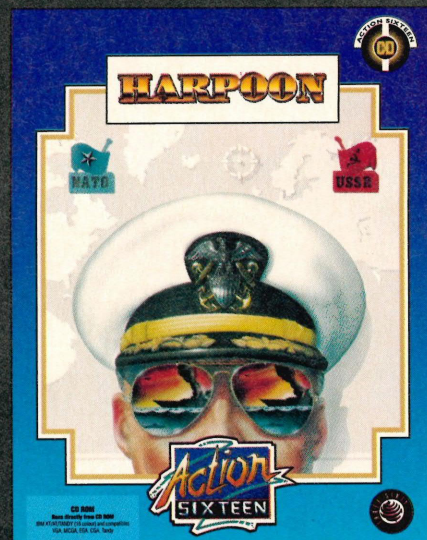
■ Gordon Houghton







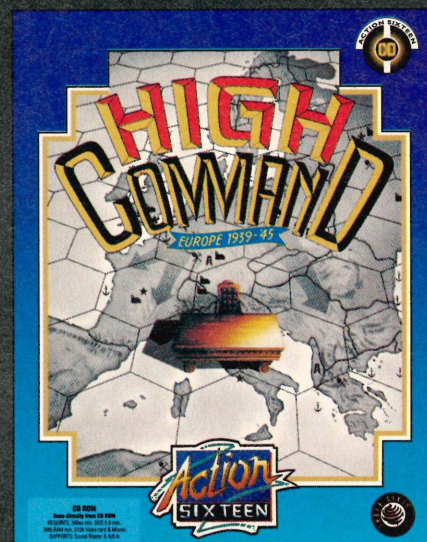
PATRIOT - CD ONLY - £17.99



HARPOON - CD ONLY - £17.99



360 COMPILATION - CD ONLY - £24.99

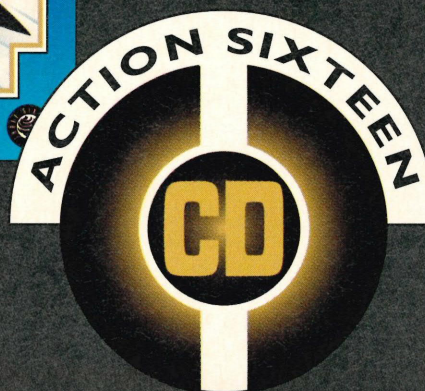


HIGH COMMAND - CD ONLY - £17.99



MEGA PAK - CD ONLY  
£17.99

Available at leading  
retail outlets. In case  
of difficulty phone  
0276 684959





## ABOUT YOU

### 1 Are you:

Male ☐ Female ☐

### 2 How old are you?

Under 13 ☐ 14-16 ☐ 17-19 ☐  
20-23 ☐ 24-29 ☐ 30-34 ☐  
35-44 ☐ 45-54 ☐ 55 or over ☐

### 3 What do you do?

Junior school ☐  
Secondary school ☐  
6th form/6th form college ☐  
Higher education (university, etc) ☐  
Full time employment ☐  
Part time employment ☐  
Unemployed ☐  
Other: ..... ☐

### 4 What do you do in your spare time? Please rate how keen you are on each of the following (10 = fanatical, 1 = couldn't care less)

Play video games ☐  
Play sports ☐  
Watch TV ☐  
Watch satellite TV ☐  
Watch videos ☐  
Listen to music ☐  
Listen to the radio ☐  
Play arcade games ☐  
Go to the cinema ☐  
Other: ..... ☐

### 5 On average how much time do you spend playing games/using your PC every week?

Less than 1 hour ☐ 1-2 hours ☐  
2-4 hours ☐ 4-6 hours ☐  
6-8 hours ☐ 8-10 hours ☐  
10-20 hours ☐  
More than 20 hours ☐

### 6 How do you usually use your PC?

On my own ☐ With a friend ☐  
With a group of us ☐

### 7 On average, how much money do you earn/get given each month?

£0-9 ☐ £10-49 ☐  
£50-99 ☐ £100-499 ☐  
£500-832 ☐ £833-1249 ☐  
£1250-1666 ☐ £1667-2499 ☐  
Over £2500 ☐

### 8 Which of the following do you regularly buy?

CDs ☐ Tapes ☐ Videos ☐  
Clothes ☐ Drinks ☐ Books ☐  
Comics ☐ Takeaway food ☐

### 9 Do you have a bank/building society account?

Yes ☐ No ☐

### If you do, who is it with?

Barclays ☐ Lloyds ☐  
Midland ☐ Natwest ☐  
First Direct ☐ Halifax ☐  
Alliance & Leicester ☐ Nationwide ☐  
Bradford & Bingley ☐ TSB ☐  
National & Provincial ☐  
Royal Bank of Scotland ☐  
Abbey National ☐  
Other: ..... ☐

### 10. What radio station(s) do you listen to?

Radio 1 ☐ Radio 2 ☐

Radio 3 ☐ Radio 4 ☐  
Radio 5 ☐ Virgin ☐  
Kiss FM ☐ Jazz FM ☐  
Classic FM ☐ Capital ☐  
GLR ☐ LBC News ☐  
Atlantic 252 ☐ Local ☐  
None ☐

### 11. What type of television programmes do you mainly watch?

Breakfast ☐ Chat show ☐  
Comedy ☐ Current affairs ☐  
Documentaries ☐ Sports ☐  
Drama ☐ Soaps ☐

### 12. What type of non-computer magazines do you buy or read?

Car ☐ Hi-fi/home ent ☐  
Humorous ☐ General men's ☐  
Film ☐ Motorcycle ☐  
Music ☐ Sport ☐  
Adult/top shelf ☐ TV listings ☐  
None ☐

## ABOUT YOUR COMPUTING

### 13. How would you describe your technical competence on the PC?

Expert ☐  
Confidently competent ☐  
Beginner, but getting the hang of most things ☐  
Complete beginner ☐

### 14. What is the specification of your current PC and which of the following do you intend to buy or upgrade within the next 12 months?

	Current	Upgrade
PC: 286	<input type="checkbox"/>	<input type="checkbox"/>
PC: 386	<input type="checkbox"/>	<input type="checkbox"/>
PC: 486	<input type="checkbox"/>	<input type="checkbox"/>
PC: Pentium	<input type="checkbox"/>	<input type="checkbox"/>

Hard disk: Under 80Mb ☐  
Hard disk: 80-200Mb ☐

RAM: up to 4 Mb ☐  
4-8 Mb RAM ☐  
Over 8 Mb RAM ☐

Sound card ☐  
CD-ROM drive single speed ☐

CD-ROM drive double speed ☐

CD-ROM drive triple/quad speed ☐

Graphics: ☐  
CGA ☐  
EGA ☐  
VGA ☐  
SVGA ☐

Modem ☐  
Mouse ☐  
Dot matrix printer ☐  
Inkjet printer (mono) ☐  
Inkjet printer (colour) ☐  
Laser printer ☐

### 15 a. Which version of DOS/operating system do you currently use?

MS-DOS 4 or earlier ☐  
MS-DOS 5 ☐  
MS-DOS 6 ☐  
MS-DOS 6.2 ☐  
DR-DOS ☐  
OS/2 ☐

# PC REVIEW

## Reader Survey

We may think we're catering for your PC wishes and requirements, but we need to make absolutely sure that's the case. And that's where you can help us, by taking the time and trouble to fill in this survey. Not only will you be helping to shape PC Review in the future, but you also stand a chance of being one of the 100 respondents drawn from the hat who will win a special software prize!

### 15 b. Do you also use Windows?

Yes ☐ No ☐

### 16. Roughly how much of the time you spend using your PC is related to playing games?

100% ☐ 75% ☐  
50% ☐ 25% or less ☐

### 17. What else do you use your PC for?

Education/reference ☐  
Music ☐  
Design ☐  
Graphics and animation ☐  
Programming ☐  
Home/personal finance or general admin ☐

### 18. Which of the following machines do you (1) own, or, (2) have access to (perhaps via a friend or family member)?

	Own	Access to
Sega Mega-CD	<input type="checkbox"/>	<input type="checkbox"/>
Sega Megadrive	<input type="checkbox"/>	<input type="checkbox"/>
Sega Game Gear	<input type="checkbox"/>	<input type="checkbox"/>
Sega Master System	<input type="checkbox"/>	<input type="checkbox"/>
Nintendo SuperNES	<input type="checkbox"/>	<input type="checkbox"/>
Nintendo GameBoy	<input type="checkbox"/>	<input type="checkbox"/>
Nintendo NES	<input type="checkbox"/>	<input type="checkbox"/>
Atari Jaguar	<input type="checkbox"/>	<input type="checkbox"/>
Atari Lynx	<input type="checkbox"/>	<input type="checkbox"/>
Atari ST/Falcon	<input type="checkbox"/>	<input type="checkbox"/>
Commodore Amiga A500	<input type="checkbox"/>	<input type="checkbox"/>
Commodore CD-32	<input type="checkbox"/>	<input type="checkbox"/>
Commodore Amiga A1200	<input type="checkbox"/>	<input type="checkbox"/>
Apple Macintosh	<input type="checkbox"/>	<input type="checkbox"/>
Acorn Archimedes	<input type="checkbox"/>	<input type="checkbox"/>
PC	<input type="checkbox"/>	<input type="checkbox"/>
PC CD-ROM	<input type="checkbox"/>	<input type="checkbox"/>
PC Engine	<input type="checkbox"/>	<input type="checkbox"/>
Neo Geo	<input type="checkbox"/>	<input type="checkbox"/>
Philips CD-i	<input type="checkbox"/>	<input type="checkbox"/>
3DO	<input type="checkbox"/>	<input type="checkbox"/>

### 19. Which machine — if any — do you intend to buy next?

Sega Mega-CD ☐ Megadrive ☐  
Game Gear ☐ Master System ☐  
Nintendo SNES ☐ GameBoy ☐  
Nintendo NES ☐ Atari Jaguar ☐  
Atari Lynx ☐ Atari ST/Falcon ☐

Amiga A500 ☐ Apple Mac ☐  
Sega MultiMega ☐ Sega Saturn ☐  
Commodore CD32 ☐ Amiga A1200 ☐  
Acorn Archimedes ☐ PC CD-ROM ☐  
PC Engine ☐ Neo Geo ☐  
Philips CD-i ☐ 3DO ☐  
Sega Mars/Mega-32 ☐  
Nintendo VR ☐  
Nintendo Project Reality ☐  
Sony PSX/Playstation ☐  
Nintendo Super GameBoy ☐

### 20. How many games do you own?

None ☐ One ☐  
2-5 ☐ 6-10 ☐  
11-25 ☐ 26-50 ☐  
More than 50 ☐

### 21. On average how many games do you buy?

Never buy games ☐  
A couple every year ☐  
One every three months ☐  
One every couple of months ☐  
One per month ☐  
Two per month ☐  
Three per month ☐  
Four per month ☐  
Five per month ☐  
More than five ☐

### 22. How many games do you get given (as presents, etc)?

None ☐  
A couple every year ☐  
One every three months ☐  
One every couple of months ☐  
One per month ☐  
Two per month ☐  
Over two per month ☐

### 23. On average, how much money do you spend each month on software and hardware?

Nothing ☐ Under £10 ☐  
£10-24 ☐ £25-49 ☐  
£50-74 ☐ £75-100 ☐  
£100-149 ☐ £150-199 ☐  
£200-299 ☐ Over £300 ☐

### 24. How much have you spent on software in the last six months?



	Business	Leisure
Under £50	<input type="checkbox"/>	<input type="checkbox"/>
£50 to £199	<input type="checkbox"/>	<input type="checkbox"/>
£100 to £199	<input type="checkbox"/>	<input type="checkbox"/>
£200 to £299	<input type="checkbox"/>	<input type="checkbox"/>
£300 to £499	<input type="checkbox"/>	<input type="checkbox"/>
£500 or more	<input type="checkbox"/>	<input type="checkbox"/>

**25. How many different games do you play in a month — either of your own, at a friend's or at work?**

None	<input type="checkbox"/>	1-5	<input type="checkbox"/>
6-10	<input type="checkbox"/>	11-15	<input type="checkbox"/>
15-20	<input type="checkbox"/>	Over 20	<input type="checkbox"/>

**26. How long have you been playing computer and games using your PC?**

A month or less	<input type="checkbox"/>	1-3 months	<input type="checkbox"/>
3-6 months	<input type="checkbox"/>	6-12 months	<input type="checkbox"/>
12-18 months	<input type="checkbox"/>		
18 months - 2 years	<input type="checkbox"/>	2-3 years	<input type="checkbox"/>
3-4 years	<input type="checkbox"/>	4-6 years	<input type="checkbox"/>
Over 6 years	<input type="checkbox"/>		

**27. In order of preference, which of the following are the most important things that help you decide which game to buy?**

(1 is most important, 10 is least important)

Computer games mag review	<input type="checkbox"/>
Computer games mag preview	<input type="checkbox"/>
Recommendation by a friend	<input type="checkbox"/>
Saw and advert in a games mag	<input type="checkbox"/>
Editorial coverage in other types of magazine	<input type="checkbox"/>
Saw it on TV	<input type="checkbox"/>
Saw an advert on TV	<input type="checkbox"/>
Saw a poster	<input type="checkbox"/>
Saw it at an exhibition	<input type="checkbox"/>
Shop demonstration	<input type="checkbox"/>
Something else, namely:.....	

**28. Where do you normally buy your software and hardware?**

Dixons	<input type="checkbox"/>
Virgin	<input type="checkbox"/>
Woolworths	<input type="checkbox"/>
Argos	<input type="checkbox"/>
Comet	<input type="checkbox"/>
Boots	<input type="checkbox"/>
Toys R Us	<input type="checkbox"/>
WH Smith	<input type="checkbox"/>
Microbyte Games	<input type="checkbox"/>
HMV	<input type="checkbox"/>
Curry's	<input type="checkbox"/>
Our Price	<input type="checkbox"/>
Rumbelows	<input type="checkbox"/>
Future Zone	<input type="checkbox"/>
John Menzies	<input type="checkbox"/>
Game	<input type="checkbox"/>
Blockbuster Video	<input type="checkbox"/>
Ritz	<input type="checkbox"/>
Tandy	<input type="checkbox"/>
Beatties	<input type="checkbox"/>
Mail order	<input type="checkbox"/>
Local specialist shop	<input type="checkbox"/>

**29. What you think of the following games publishers (please tick one box only per publisher listed)?**

	Good	OK	Poor	Don't know	Who?
Access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accolade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Action 16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Activision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bitmap Brothers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bluebyte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bullfrog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Codemasters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyberdreams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital Integration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Domark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Arts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Empire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gametek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gremlin Graphics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hit Squad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Impressions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Infogrames	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interplay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kixx XL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lucas Arts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maxis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MicroProse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mindscape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mirage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ocean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Origin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Psygnosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensible Software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sierra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Software Toolworks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spectrum Holobyte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SSI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supervision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Warner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
US Gold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Virgin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other favourite: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## ABOUT THE MAGAZINE

**30. Would you ever buy a game without seeing a review in PC Review?**

Yes ☐ No ☐

**31. Where do you usually buy your computer games magazines from?**

WH Smith	<input type="checkbox"/>	John Menzies	<input type="checkbox"/>
Martins	<input type="checkbox"/>	Fourbuys	<input type="checkbox"/>
Tesco	<input type="checkbox"/>	Sainsburys	<input type="checkbox"/>
Asda	<input type="checkbox"/>	Woolworths	<input type="checkbox"/>
Safeway	<input type="checkbox"/>	Waitrose	<input type="checkbox"/>
7-Eleven	<input type="checkbox"/>	Petrol Station	<input type="checkbox"/>
SuperDrug	<input type="checkbox"/>	Local newsagent	<input type="checkbox"/>
Subscription	<input type="checkbox"/>		
Somewhere else: .....	<input type="checkbox"/>		

**32. Is your copy of PC Review either:**

Saved for you by the newsagent ☐  
Or, delivered to you by the newsagent ☐

**33. How many other people apart from yourself will see your copy of PC Review?**

Nobody else	<input type="checkbox"/>	One	<input type="checkbox"/>
Two	<input type="checkbox"/>	Three	<input type="checkbox"/>
Four	<input type="checkbox"/>	Five	<input type="checkbox"/>

More than five (please write in number).....☐

**34. How long have you been buying PC Review?**

One month	<input type="checkbox"/>
1-3 months	<input type="checkbox"/>

3-6 months	<input type="checkbox"/>
6-12 months	<input type="checkbox"/>
12-18 months	<input type="checkbox"/>
18 months - 2 years	<input type="checkbox"/>
Over 2 years	<input type="checkbox"/>

**35. How often do you, personally buy PC Review?**

Almost always	<input type="checkbox"/>
(at least three in every four issues?)	
Regularly	<input type="checkbox"/>
(between one and three in every four issues?)	
Occasionally	<input type="checkbox"/>
(less than one in four)	
Never	<input type="checkbox"/>

**36. What will you do with this copy of PC Review once you've finished with it?**

Keep it for reference	<input type="checkbox"/>
Pass it on to someone else	<input type="checkbox"/>
Throw it away	<input type="checkbox"/>

**37. On average, about how much of PC Review do you read or look at (excluding advertisements)?**

Cover to cover	<input type="checkbox"/>
More than three-quarters	<input type="checkbox"/>
About half to three quarters	<input type="checkbox"/>
About a quarter to a half	<input type="checkbox"/>
Less than a quarter	<input type="checkbox"/>

**38. Roughly how long do you think you spend reading or looking at an average issue altogether?**

3 hours or more	<input type="checkbox"/>
2-3 hours	<input type="checkbox"/>
1-2 hours	<input type="checkbox"/>
less than 1 hour	<input type="checkbox"/>

**39. How would you rate PC Review out of 10 as a computer magazine?**

(10 = excellent, 1 = very poor)  
Score .....

**40. How do you rate PC Review as a mag? (10 = excellent, 1 = poor)**

Score .....

**41. What do you think of the different sections of PC Review?**

	Good	Average	Poor
Covers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover disks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
News	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Columns (Cooke Report, Ciarán's Rant)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Previews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Game reviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCR Recommended	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shareware reviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical Help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product Directory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Graphics Workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Letters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
QED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q & A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**42. How is the technical level of PC Review?**

Far too simple	<input type="checkbox"/>	Too simple	<input type="checkbox"/>
About right	<input type="checkbox"/>	Too technical	<input type="checkbox"/>
Far too technical	<input type="checkbox"/>		

**43. What other magazines do you normally buy or see, or used to buy but don't any more — and how would you rate each of them out of 10 (where 10 is excellent, and 1 is rubbish)?**

	Buy	See	Used to buy	Score
PC Answers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Format	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Games	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Gamer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
PC Zone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
What Personal Computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Which Computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Multimedia & CD ROM Now	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
CD ROM Today	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
CD ROM User	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
GamesMaster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Computer & Video Games	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Edge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Games World	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**44. How did you first find out about PC Review?**

From a friend	<input type="checkbox"/>	In a newsagent	<input type="checkbox"/>
From a magazine advertisement	<input type="checkbox"/>		
At an exhibition	<input type="checkbox"/>	From a TV show	<input type="checkbox"/>
From a radio ad	<input type="checkbox"/>	From a leaflet in a hardware or software purchase	<input type="checkbox"/>
Somewhere else, namely:.....	<input type="checkbox"/>		

**45. What do you think would be the best cover policy?**

No disks at all and reduce the price to £2.95	<input type="checkbox"/>
Two high-density disks at £3.95	<input type="checkbox"/>
One CD-ROM disk at £4.99	<input type="checkbox"/>
One CD-ROM plus one disk at £4.25	<input type="checkbox"/>

**46. If you could change one thing about PC Review to make it better what would it be?**

.....  
.....  
.....  
.....  
.....  
.....  
.....

**IF YOU WANT TO BE INCLUDED IN THE PRIZE COMPETITION, MAKE SURE YOU FILL IN THE COUPON BELOW:**

Name:.....  
Address:.....  
.....  
.....  
.....  
.....  
Postcode .....

I would/would not (please delete as applicable) be interested in taking part in further questionnaires regarding PC Review. This does not mean that my details will be given out to third parties for mailing purposes.



# Budget Games

Old games being re-released on CD seems to be the flavour of this month — and at a reasonable price.



**High Command**  
**Action Sixteen**  
£17.99

Take command of land, sea and air forces as battle rages across Europe in the Second World War. And not only fighting forces. In High Command you can also control and influence political and economic resources — and make the most of diplomatic offensives.

While visually unappealing, budding megalomaniac and control freaks will be in seventh heaven with this game. Add to that a massive and amazingly in-depth manual and you've got a CD-ROM gaming experience almost as long as the war itself.

\*\*\*

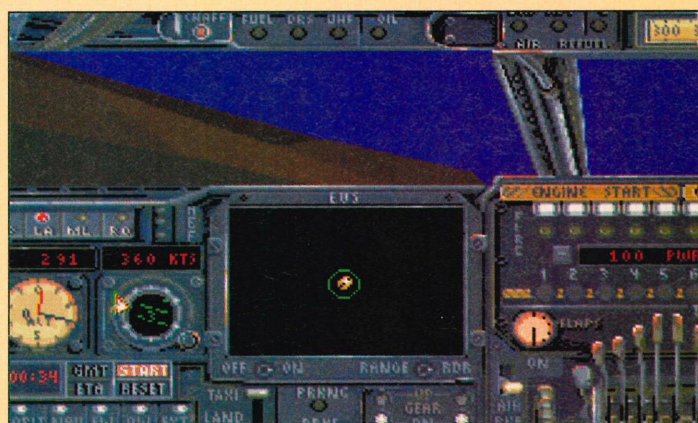


**Star Control and Star Control II CD compendium**  
**Accolade**  
£19.99

Both these games pre-date PC Review, but were highly rated when they were released in 1991 and 1992. And in this CD compendium package, they represent remarkable value for money.

Both are space strategy and action. The first game deals with conquest hungry invaders determined to add humanity to its list of victories. The sequel, which adds a science fiction role-playing element for good measure, involves you liberating alien planets and civilisations. Both games play directly from the CD.

\*\*\*\*



**Megafortress Mega Pak**  
**Action Sixteen**  
£17.99

Multi-faceted strategic air assault simulation that let's you take charge of a mighty B-52, packed with so much firepower it's a wonder it can get off the ground at all.

There are multi-missions to undertake, multi-roles to play (pilot, co-pilot, navigator) and lots of minute detail to pay attention to as well.

If you're keen to open up old wounds in Iraq, Lybia and the former USSR, then there's a mission for you.

\*\*



**Archer Maclean's Pool**  
**Hit Squad**  
£14.99

Whether you play the 256 or 16 colour versions, this was and still remains the most accessible snooker program. It uses the same engine and interface developed for Maclean's earlier game, Jimmy White's Whirlwind Snooker. You can play eight or nine-ball play, coin-op or pro rules, eight player tournaments and trick shots. Originally priced at £34.99 when the 256 colour version was released towards the end of last year, it was rated eight.

\*\*\*\*



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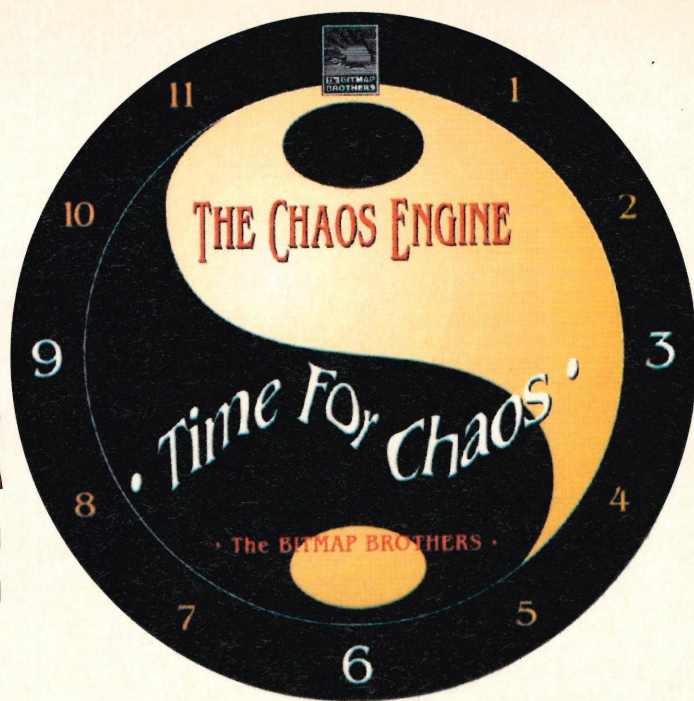
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# WIN!

## A CHAOS ENGINE WALL CLOCK 5 COPIES OF THE CHAOS ENGINE

The great new game from Renegade



**F**unny old concept, time, isn't it? After all, what would you do if you didn't know what time it was? That period between dawn and sunset would be an entirely blank canvas. How would you know when to go to work? When to eat supper? When to switch on EastEnders? Not only that, but how are you going to hide the smudge on the wall where the wallpaper doesn't quite join.

Let PC Review put an end to horological misery. With the help of those kindly souls at Renegade, we're able to offer you this fabulous, limited edition Chaos Engine wall clock. Simply hang it on your wall, carefully covering up the smudge where the wallpaper doesn't quite join, and every time you look at it, not only will you discover — instantly — what hour of the day it is, even what minute of the hour, but you will also be reminded of one of the finest arcade-style games to reach the PC this year.



### RULES

- Employees of EMAP Images, AVM, and Renegade, and their families and associates are not eligible to enter this competition.
- No multiple entries, please.
- No entries received after the closing date will be accepted.
- The editor's decision is unquestionable.

### HOW TO ENTER

It's all very easy really. The four questions below all describe games which have something to do with time, whether it's hours, minutes, or years. All you have to do is to identify correctly the game in question.



1. In which games do you have just one hour in real time to rescue the princess from the clutches of the sultan? (There's a bit of a clue above).

2. In 1935, highways were first built; in 1959 nuclear power stations became available; in 1990 solar power became viable. Which game?

3. The Eleventh .....

4. With a selection of six mercenaries, you embark on a dangerous mission to infiltrate Baron Fortesque's castle. Inside you must find the monstrous steam-driven machine the baron has built which is causing mayhem in the surrounding country.

When you think you know the answers, mark them on the coupon below. Then complete the form, send it (or a photocopy if you don't want to spoil your copy of the magazine) to:

Horologically challenged  
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London EC1R 3AU

Your entry *must* reach us by September 15th, 1994. This is the closing date and any entries which arrive after that will not be eligible for the prize draw.

### Horologically challenged

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Address.....  
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Postcode.....

Answers  
1.....  
2.....  
3.....  
4.....

☐ Tick this box if you do not wish to receive further information from companies associated with this competition

Closing date September 15, 1994  
PC Review Issue 35 September 1994

COMPETITION



# Theme Park

Bouncy castle keeps exploding? Food not up to scratch? Cal Jones sets you on the right track to becoming a funfair millionaire in Theme Park.

Right: Fences not only look good; they also make rides safer. Trees, lakes and fountains also make the place more pleasant.

Below: The snake ride is the most unreliable in the park. Check on it regularly to make sure it's not on the verge of exploding.

**W**hen you've got punters to keep happy, shops to stock, rides to repair, research to fund and staff to manage, getting your theme park off the ground is far from easy. Firstly, just how do you stay out of the red? My first tip is this: don't even think about having a firework display. It may cheer up the punters, but it'll cripple you financially. Second tip: research is very expensive (if you're playing the Sim or Business game) — so don't give it maximum funding until your park is well established and profitable, and cut funding whenever your bank balance starts to look unhealthy.

That's how not to lose money. This is how you actually make it. All rides are free once you enter the park, so it follows that

the more rides you have, the higher the entry fee should be. Increase ticket prices a little every time you build something new, and whenever your adviser tells you you're being too generous as well.

Rides may be included in the entry price, but shops and stalls definitely aren't, and if you site them carefully you should be able to bump up your income considerably.

Food and drink stalls are always in demand, but there are a couple of tricks which will help you sell more. Increasing the amount of sugar in ice cream makes the children crave more (the down side is that it can also make them sick), and adding caffeine to coffee will make the punters move around a lot quicker. The best trick is to make your fries very salty, and then place a coke stand next door so that the thirsty people immediately go and buy a drink. One obvious point: empty shops don't make money, so if you're playing on Business level, keep an eye on your stock screen. You can research larger warehouses, and while this isn't as exciting as

inventing new rides, you don't have to order stock as frequently.

Gift shops can be big money spinners, but the punters are more likely to splash out their hard earned cash on plastic tat when they're happy. And when are they at their happiest? When they arrive, and after they've been on a particularly good ride such as the roller coaster or rubber tubing. When you begin your park, place the balloon shop directly opposite the gate, and later on, leave room for other gift shops by the exits of your best rides.

The happiness of your punters is, of course, vital to your park's success. Big rides bring instant satisfaction; high prices, long queues and accidents cause nothing but misery. Placing entertainers near long queues helps relieve boredom,



## TECHNICAL HITCH

Rides often break down, and once your park has grown to a reasonable size it's often hard to keep track of them.

A mechanic can usually take care of three or four rides.

But you need to keep an eye on them as you tend to find that they'll often neglect a dangerous ride because they're taking a tea break.



It's better to fix a ride before it starts smoking — the parasol chairs isn't in flames yet but it soon will be if you don't do something about it.



Use the mechanic icon in the top right corner to find someone who's free. Pick him up using the claw icon and move him over to the ride you want him to repair.

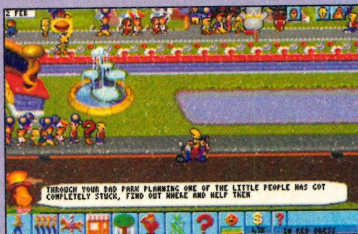


When you've placed him down, click the spanner icon over the ride and he'll start work. If there are no spare mechanics and the situation is dangerous, hire a new one.



## THUGS AND HOW TO DEAL WITH THEM

Thugs cause all sorts of problems — they beat up your entertainers, vandalise your rides, rob your shops and, worst of all, pop the kiddies' balloons. Get rid of them as soon as they appear to minimise the damage.



The first sign of trouble — a motorbike full of dodgy looking geezers pulls up outside your park. Thugs, like buses, come in twos and threes. Be on your guard, or if you don't have a guard, hire one.



You've spotted a thug (the quiffy bloke in the purple on the left) on the loose. Using the claw icon, move your guard nearby so that he can apprehend the troublemaker and escort him out of the park.

and keeping the rides well maintained prevents them blowing up and hurting people.

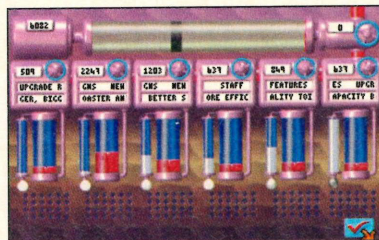
As for prices, this is a matter of trial and error. If the punters complain about prices, lower them — in rich countries you can get away with doubling the stock price, but in poor countries be more generous.

You may have noticed that the little people complain like hell if they have to walk too far, and rarely venture into the back end of the park. When you start a new park, the rides you have at your disposal are rudimentary, and these are invariably placed near the gate. Consequently, later, more exciting rides are placed further away and are largely ignored. First impressions count, so try to stick your star attractions near the gate, removing old, primitive rides to make way for them. For example, suppose the tree house you have placed next to the gate is reaching the end of its life, and you've just developed a pirate boat. Remove the tree house, build the pirate boat on its site and then build a new tree house on a different site further away.

Most of the rides are the same size and so it's easy to replace one with another, but track-based rides such as the roller coaster, big dipper, race track and rubber

tubing are as large as you want them to be, so leave room for them in a prime spot. You may also want to put a gap around the edge of the park for a monorail.

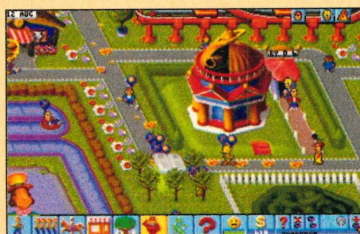
Finally, once you've built your masterpiece, you don't want to see all your profits disappear because a rival has bought all your shares. If you have enough money, the solution is simple: buy all your own shares as soon as you open your park, because after the first year they become available to everyone else. Of course, this won't affect you unless you're playing the Business game.



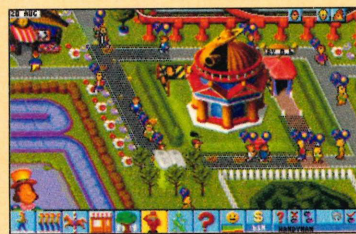
It's nice getting new rides, but as far as research is concerned, your best bet is to split your funds fairly evenly over all categories. Rides take longer to research than features or staff training: set levels accordingly.

## S(T)ICKY SITUATIONS

Food shops are good for making money, but cause two problems: litter and vomit. You can keep your park clean and hygienic by giving your handymen routes to follow.



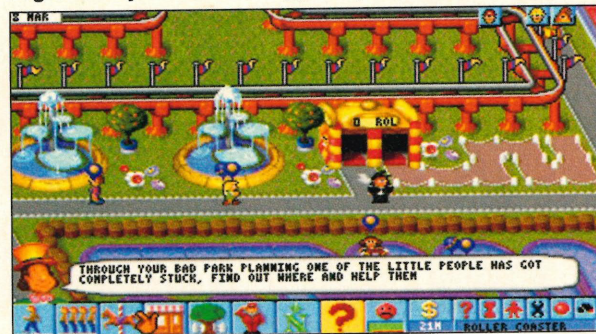
Huergh! Blech! The smell and sight of puke is enough to make anyone hurl. So if you see any, make sure that you clean it up as quickly as you possibly can, before it sparks off a real vomfest.



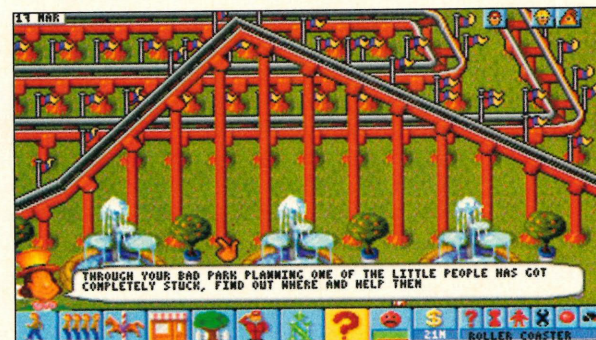
Locate a handyman and place him near the trouble spot. Select the double blob icon, followed by the blob with the arrow over it. Now click on the section of path you want him to patrol.

## ROLLING YOUR OWN

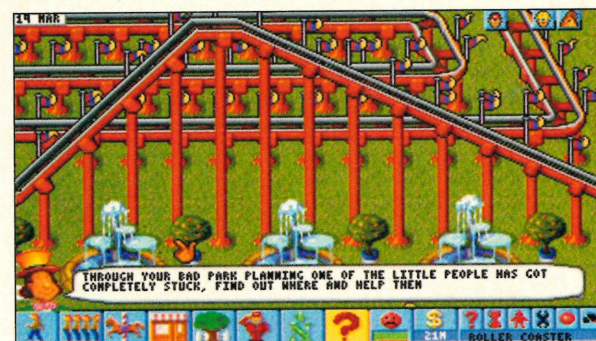
Building your a roller coaster can seem daunting at first, not to mention confusing. Keep your initial attempt simple — once you get the hang of things, you can begin to get a bit more ambitious, but you don't want any "Pepsi Max Big One" style incidents happening in your first park.



First lay a complete circuit of track. Don't bother making any hills track until you've done this, because it's often hard to see what's going on behind a large hill. It's easier to build hills widthways rather than lengthways, so make the left-to-right straights longer than the top-to-bottom straights.



Next, click on the piece of track you wish to raise to create your first hill. Don't make the "up" side too steep or the train will struggle (trains travel clockwise), and don't place a sharp turn immediately after a drop or your punters will be flung out. Leave room for loops which you can add later.



Finally, flatten the top of each hill (sharp-topped hills are another thing which can make your punters' bottoms lose contact with their seats). Corner sections should also be level for the same reason — steep drops which turn a sharp corner or two are a recipe for disaster.



This is how NOT to do it. This section of track is enough to derail a train, never mind the people in it.

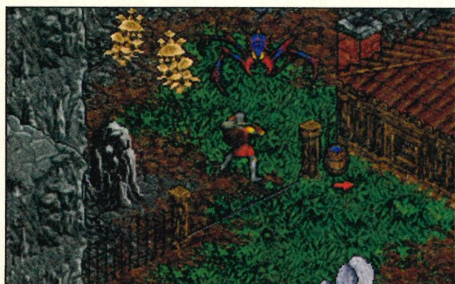


# Tips

## Ultima Underworld II

Robert Mackenzie Ross has a cheat for Ultima Underworld II which should help you get the better of the evil Guardian once and for all. To change the scores for your character in one of the four slots, remembering which one you've used, use a hex editor to edit the Player.Dat file in the save game directory (these are numbered 1 to 4, according to which slot has been used). In this file the character scores are located in the decimal addresses 31 (Hex address 1F) to 84 (Hex address 54). Origin has used an encryption technique to discourage casual tampering. To increase your scores you must decrease the hex values. However, the encryption prevents you from changing the scores by more than two, and some cannot be changed at all. Also, you can't change each score more than once because the game may not run. The locations are as follows, given in decimal with the hex address in brackets.

- 31(1F) Strength
- 32(20) Intelligence
- 33(21) Dexterity
- 34(22) Attack
- 35(23) Defence
- 36(24) Barehanded
- 52(34) Appraise
- 53(35) Swimming
- 84(54) Skill points



Other addresses refer to hit points, mana levels, spells and so on. If you don't want to cheat too much, go to location 84 (skill points) and decrease the value by one. Load the game, save, quit and repeat. This will work every time providing you only change location 84.

## Ultima VIII: Pagan

Lincol Lin has written in all the way from Canada with this cheat for Origin's latest epic. Use a hex editor to open the file Avatar.Dat in the Gamedat directory. Change the values of bytes 42 and 43 from 00 00 to 01 01. Save the file.

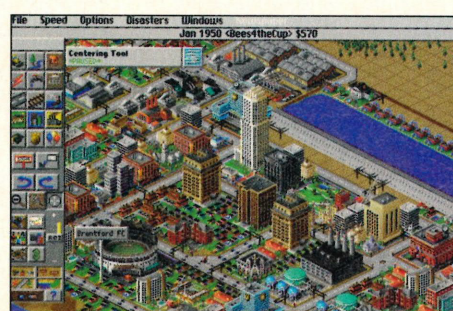
Start the game as normal, then left click on the Avatar and a cheat menu should appear. The choices are self explanatory. Press Ctrl-F1 for the debug menu and Shift-F4 for immortality.

If the Avatar dies and you have to start the game from scratch, the cheat will no longer work and you must repeat the procedure.



## Sim City 2000

Nathan Curtis, Graham Fairbrother and Edward Benham of Southampton have found an easy way to make money in Sim City 2000. Start a new game on hard mode, and immediately repay the \$10,000 bond. Type in "fund" twice and click on "yes" both times. Then issue a bond. At the beginning of each subsequent year you will receive over \$1,000,000.



## Jet Strike

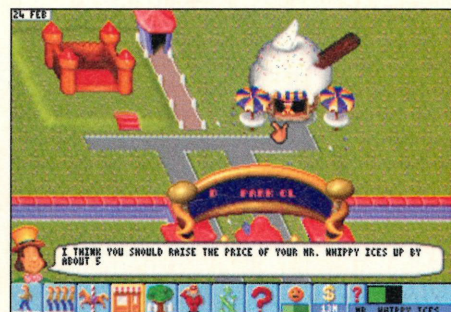
Kevin Knight has the level codes for Jet Strike:

1. TDEJQNQL
2. JHALMROB
3. RZWVUVCP
4. VZQRUDOP
5. HTETAPOJ
6. NFYHOTAR
7. RPSREBSX
8. TREFCPMJ
9. XHYJMVKX
10. HHSFMBQX
11. HXEXWPWW

## Indiana Jones and the Fate of Atlantis

Wilf Dell of Galashiels has replied to Asif Hameed who asked for help on Indiana Jones and the Fate of Atlantis in Issue 31. His directions are below:

Look at the two stones which are loose. Push them. This will reveal statues of a bull's head and tail. Use the transit on each statue. Fine tune the transit on the edge of the horn. Go to the other statue and repeat the process. An X will appear on the ground. Use the ship's rib on the X to find the moonstone.



## Theme Park

B Hussain of Harlow in Essex has found a few cheat keys for the Theme Park demo we ran on Issue 32 (June).

Pressing C gives you more money, T changes the weather and Y brings up the end of year charts. A comma miniaturises things in the park and a full stop enlarges them again.

## HELP ON GAMES

Wayne Roberts has been collecting hints and tips for over three years, and has launched a disk based 'magazine' called Cheet Sheets (sic). Each monthly edition contains hints, tips and solutions for around 50 games, and the current issue (Issue 32) will include full help on Ultima VIII and Ravenloft. To find out more about the service, write to Wayne at: "By-the-Way" Chilsworthy Gunnislake Cornwall PL18 9PB or call his BBS on (0822) 833765. between 3pm and 9.30 pm.



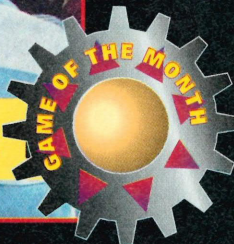
# JOIN THE SQUAD... PLAY THE PC HITS

## PGA TOUR GOLF



ELECTRONIC ARTS

By Sterling Silver Software



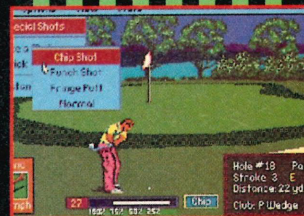
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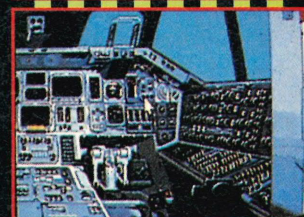
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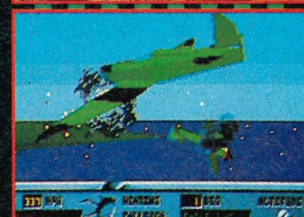
1 4 9 9



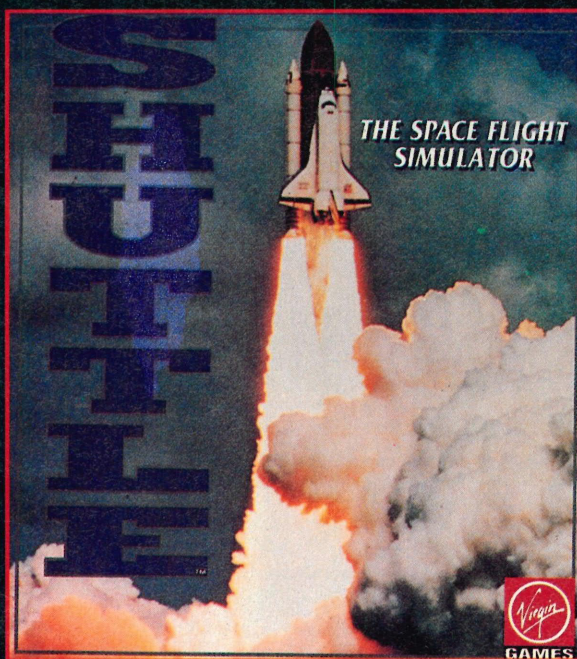
PGA TOUR GOLF



REACH FOR THE SKIES



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## HELP WANTED

I have been playing Ultima Underworld II for some time, but try as I might I can't complete the game. Where do I find the Filanium mud and where do I use the Altara's sceptre in Praecor Loth and the Ice World?

*J A Peters, Cumbria*

**Answer:** The mud is located in the south east of the second level of the Ice Caves. You will have to swim across the river to reach it, before skating across a lot of ice and then fighting a few yeti. Throw the basilisk oil into the mud (you can get this from Zaria in the Pits of Carnage) before bathing in it. Then find some lava (Talus) and bathe in that before drinking a potion of Iron Flesh.

To cut the Guardian's lines of power in Praecor Loth, use the sceptre at the end of the north-west passage on the first level (just past the rock fall).

In the Ice Caves, use it at the fountain in Anodunos.

I am having trouble with Ultima VII. Where do I find the key to open the secret passages in the House of Games at Buccaneer's Den, and how do I get into Penumbra's house in Moonglow?

*Greg Johnson, Australia*

**Answer:** To get the key you must speak to Sintag. As for Penumbra's house, you need to place the hammer, gold ring, lockpick, spindle of thread (you'll find some on the jetty at Spektran) and gold next to the plaques at the front. Each plaque appears in turn. Awaken Penumbra using an orange potion.

I'm stuck in the Dagger of Amon Ra and desperately need your help. So far I've acquired the dagger of Amon Ra, lantern, cheese, snake lasso, snake oil, pliers, carbon paper, Carter's notepad (deciphered with charcoal), hieroglyphics (deciphered), police file and dinosaur bone. Carter, Carrington and Ziggy are dead. Where do I go next?

*Jackie Bell, London*

**Answer:** Perhaps someone out there might be able to help?

I'm playing Hand of Fate and can't find the windy woof I need to make the swamp snake potion. Also, I have picked a mushroom — is that what the recipe means by toadstool?

*Carline Gillingham, Manchester*

**Answer:** The windy woof you are looking for is actually gnarly bark. Woof, bark; bark, woof... oh, never mind. And hold the mushroom! The toadstool you need is in Herb's Shack — it's a little wooden stool designed to be sat on by a toad. Lateral thinking, huh? If you do get stuck again, we printed the full solution to Hand of Fate in Issues 31 and 32. You can order back issues using the coupon on page 141.

I'll be very happy if you can help me with Elder Scrolls: Arena. I'm totally stuck in Fang Lair. When I walk to the big magical door in the cellar, the question asked is:

What is neither fish nor flesh

Feathers nor bone

But still has fingers

And thumbs of its own?

*Paal Wilhelmsen, Norway*

**Answer:** I don't know for sure but I'll hazard a guess that the answer is a glove or pair of gloves. If anyone knows for sure, please write in to Help Supplied and put us out of our misery.

In Simon the Sorcerer I have no idea how to get the staff of Nafflin the Necromancer. Please can you tell me how to get it?

*Edward Tarratt*

**Answer:** Well, Edward, since you haven't said how far you have got, I can only give you a rough idea of what to do next. You need to get whatever wood the woodworms have requested, and you can find this in the woodcutter's cottage. Once you've given him the Milrith axe head (find the Milrith and use it on the blacksmith's anvil) you'll be able to go inside. The way into the basement is hidden in the fireplace. Take the wood back to the worms and let them jump into it. Then take this to Repulser's tower. Use the wood on the floorboards and go down through the hole. When Nafflin attacks you, move the loose bandage to unravel him. Take the staff back to the wizards in the pub.

Am I the only person still stuck on Serpent Isle? I desperately want to finish it before I start Ultima VIII. I'm on Sunrise Isle and can't figure out which symbols to put on the altars. It seems as though I've been playing this for ages — am I near the end yet?

*Lisa Greene, Cheltenham*

**Answer:** You are very near the end, so worry not. The torch goes on the altar of Tolerance, the chain on Ethicality, the Heart on Logic, the Abacus on Emotion, the dagger on Enthusiasm and the Rose on Discipline. Good luck!

## PUBLISHER'S HELPLINES

**Hopelessly stuck in a game? Many software publishers run games helplines to help out hapless souls with hints and tips.**

### ACCOLADE

Helpline number: (081) 887 0880

### CYBERDREAMS

Helpline number: (071) 372 4307

### DOMARK

Helpline number: (081) 780 2224

### ELECTRONICS ARTS

Helpline number: (0753) 546465

### GAMETEK

Helpline number: (0753) 553445

### GREMLIN GRAPHICS

Helpline number: (0742) 753423

### INFOGRAMES

Helpline number: (0891) 244444

### INTERPLAY

Helpline number: (0865) 390029

### MICROPROSE

Helpline number: (0454) 329510

### MINDSCAPE

Helpline number: (0444) 246333

### OCEAN

Helpline number: (061) 839 0999

**With automated numbers (0891) get the permission of whoever pays the phone bill first. Calls cost 39p per minute cheap rate, 49p per minute at all other times.**

## Warning



Do not attempt the cheats marked with the Danger icon, unless you have access to a file editor such as Norton or PC Tools and you are confident that you know what you are doing.

PC Review will not accept any responsibility for damage to data caused by trying out these cheats. And remember: always Back up your files before editing them so that you can restore the originals if you need to.

**Send your tips to: QED Tips at PC Review, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU. Your cries for help should go to Help Wanted at the same address as above.**





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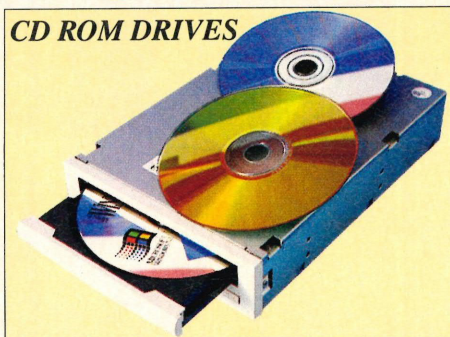
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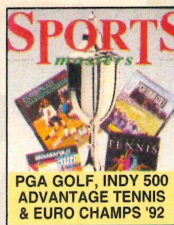
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# PGA Tour Pro

PGA Tour may be something of an antique by today's graphic standards, but it still has a place in every PC golfer's heart. Simple but extremely playable, it has appeared on just about every computer format under the sun at one time or another.

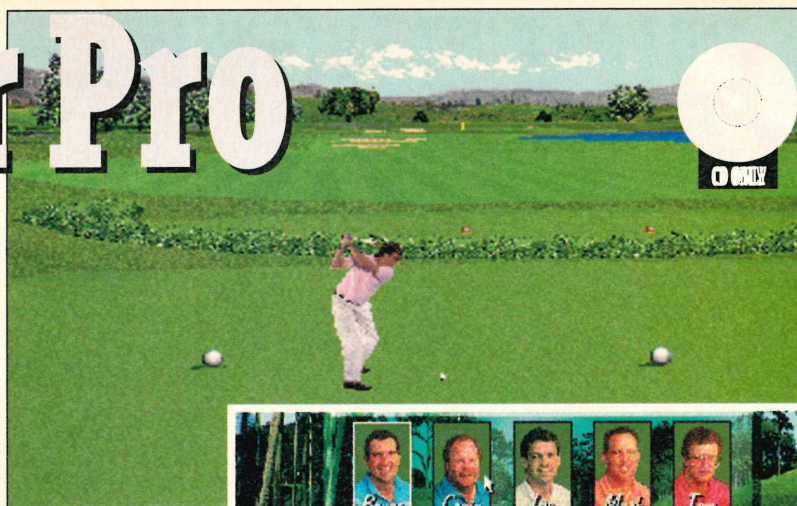
So now the new, fully licensed PGA Tour 486 is on its way, developed by EA Sports — the same team responsible for the recent, and excellent, FIFA Soccer.

The game will only be released on CD, and it features three courses (which will undoubtedly be followed by umpteen course updates), two of which have never appeared in a golf game before. And, as an 'official licence', PGA Tour kicks off with full player interviews and course commentaries, as well as video clips of

each course. You can seek advice from any one of 12 top US pros — from Tom Kite to Fuzzy Zoeller — before you try your hand against them in tournament, practice or skins games.

Even though this version is still a couple of months away from being finished, it is already apparent that it is going to be a real looker — with high resolution bitmaps, ray traced objects and shaded land-scaping to provide an excellent sense of detail and depth. The digitised golfers are equally remarkable, with immaculate swing technique.

The control system is surprisingly simple, using a variation on the familiar multiple mouse clicks on the swing to decide shot length, draw or fade. This allows for a nice level of touch and control in the shot — with spin, stance and stroke options called up from a side menu — and generally appears less cluttered than the current king of the PC golf scene, Access's Lynx 386 Pro.



**Practising your swings has never been easier — especially when you can get good advice from 12 of the top US professional golfers on the circuit. Just keep your eye on the ball.**

According to EA, this was a major factor in designing PGA Tour: to make it faster (hardly difficult) and more friendly than Lynx, and most of the remaining work on the game will be on the game speed. If EA can get this really flying along, and the control system proves to be as good from a realism standpoint as it is for gameplay, then PGA Tour Pro has the potential to put Lynx well and truly in the shade.

■ John Bennett

## FAXBOX

### PGA TOUR

**Developer:** EA Sports  
**Publisher:** EA  
**Release date:** TBA  
**Genre:** Sports Sim  
**Minimum PC:** £34.99

Mention Origin and the first thing which springs to mind is probably the word "Ultima". The second thing which springs to mind, though, is Wing Commander, that superbly popular blend of space combat and soap opera which is now, finally, into its third instalment. Yes, Wing Commander III is almost here and promises to be bigger, better and flashier than any of its prequels.

Wing III, you see, is being billed as an "interactive movie". Stop! Don't turn the page! I know the phrase "interactive movie" usually means nice graphics, bloody awful game, but Wing III is different: you can expect all the gameplay of the previous two instalments coupled with video footage and (yes indeed) famous actors. Instead of the usual chisel-jawed, animated heroes of Wings I and II, you get Mark "Luke Skywalker" Hamill as lead character Chris Blair, along with Malcolm McDowell of Clockwork Orange fame as Tolwyn, John-Rhys Davies (the Indiana Jones movies) as Paladin and various guys in lion costumes as the Kilrathi.

The game doesn't consist entirely of video footage (the space combat sections might have been a bit tricky otherwise), but merges the film with computer generated graphics.

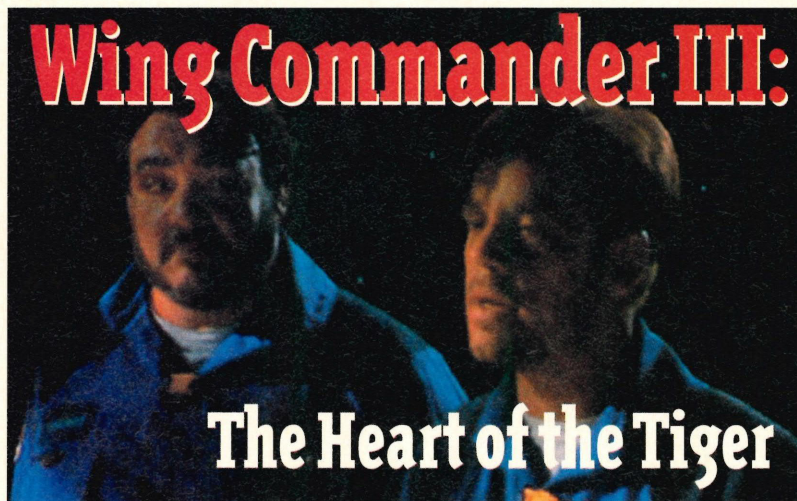
It also has a darker feel than its prequels — Angel, your wingwoman in the first two games, dies during the intro sequence, and the final mission is a suicide Death Star-

style bombing run (appropriately enough, given the cast) on the Kilrathi home world.

Mark Hamill is no stranger to starring in computer games, having provided the voice of Mosely in Sierra's thriller-adventure, Gabriel Knight.

"There are so many eventualities in the script that making this is a whole new ball game," he says of Wing III.

"I have the feeling that I may look back in 50 years and say, "Hey, I was in at the beginning of this phenomenon," just like

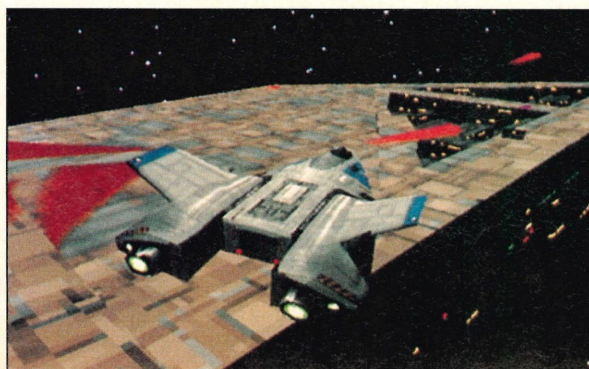


**Wing III — interactive movie style.**

the actors at the end of the silent era might have felt when they began doing talking pictures."

Wing Commander III looks like one to watch out for.

■ Cal Jones



## FAXBOX

### EMPIRE SOCCER '94

**Developer:** Origin  
**Publisher:** Origin  
**Release date:** Winter  
**Genre:** Space Combat  
**Price:** £TBA





## Top 10

Over 100 new PC products were on show at the recent Consumer Electronics Show in Chicago — too many to list here. But Christina Erskine was on hand to select a Top 10 for this month's special previews section, and to compile an unnaturally large Coming Soon on page 95 where we present you with the best of the rest.

# Colonization

## MicroProse

If you've been holding your breath for Civilization 2, don't exhale yet. This isn't really it. Colonization is more like an enhanced version of Civilization, with some extra dimensions to the gameplay — and what's wrong with that? The premise of Colonization is that following religious unrest in the mother country, you and a band of fellow-pilgrims set sail to found a new world. The default scenario has you stepping ashore in North America in the 17th century, so that you can play the game as a recreation of his-

tory. But you can also take on a game-generated, fictitious land.

The hordes of barbarians encountered in Civilization are replaced by Iroquois, Sioux and other Native American tribes, with whom you can either co-exist in an uneasy peace or attempt to conquer. You play as English, French, Spanish or Dutch settlers, and eventually encounter the emergent communities of your old world rivals, just as in Civilization.

So far, it all sounds pretty much like its predecessor. Where the game strategy differs mainly is that you never sever links with the mother country. There are always more malcontents ready to join the new world and these people may bring with them special skills.

If your people are uneducated, for example, you need to attract teachers to the new land. If not enough food is being cultivated, you need farmers. Miners, fur trap-

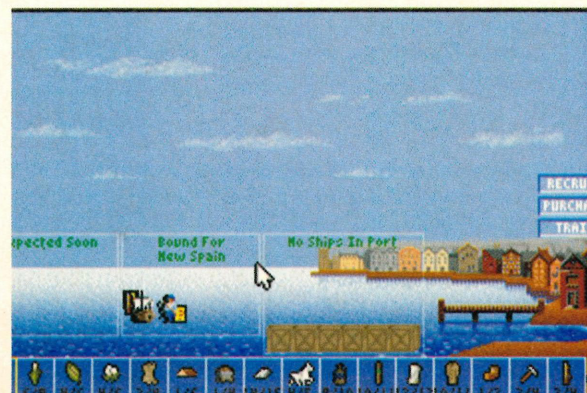
**More lands to explore, more nations to develop, more new worlds to create — in fact more of everything in this latest stablemate to Civilization.**

pers, construction workers and the like will be needed to start new industries. Instead of civilization advances being developed by a nebulous group of researchers, those with the requisite knowledge and experience need to be attracted to the new site. Then your community needs to be both attractive and profitable in order to expand.

Unlike Civilization, the new game has a finite finishing point. Once your colony is capable of thriving independently — without any assistance from the mother country — you can declare independence and win the game.

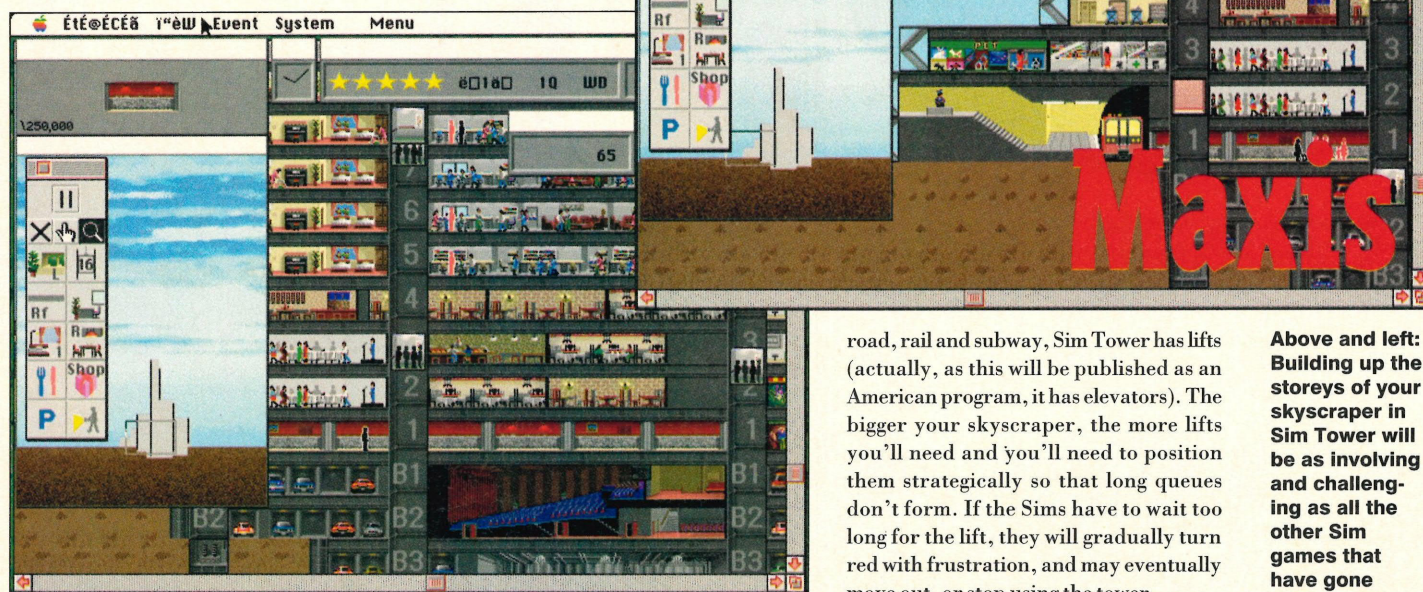
There is a graphic improvement over Civilization, but not too much — it's still recognisably from the same stable. The villages and town screens are now drawn, rather than represented and there are some nice quayside settings, but in general, any Civvie is going to feel comfortable with Colonization very quickly.

•Due out in September on PC disk.





# Sim Tower



If you've already read the profile on page 42, you'll have a tantalising idea of just what Maxis is trying to achieve in the long term, and Sim Tower gives you a glimpse into the future as Maxis sees it. SimCity fans should love it: it's similar enough in concept to strike an immediate chord and different enough in terms of gameplay to offer a fresh challenge. Sim Tower has been developed by a Japanese company called Open Book, which has a long association with SimCity creator Will Wright, although this is its first game created especially for the company.

Instead of having a city to create, in Sim Tower you build a skyscraper. You have up to 99 floors to use — plus a choice of tasteful roofing.

Just as in SimCity, you place residential and commercial units in the tower block — this is a multi-purpose building rather than purely for offices or high rise flats — but in Sim Tower, you can be more specific about exactly what sort of residence or commercial suite goes where.

You can choose, for example, between small and large apartments, or put a hotel in the tower. You can choose between shops, offices, bars and restaurants. You can even put in conference centres, a cinema, a medical centre (and PC Review is angling for the inclusion of a fitness centre, and a night club to keep the tower alive through the small hours — but they're not in yet).

Below ground, you can include garbage collection facilities, a car park and a subway station, among other things — you can put your shops and living quarters underground if you want.

What the simulation will provide is people: the inhabitants, office workers, visitors to the shops and restaurants, and

so on. Where in SimCity 2000 the population were rudimentarily represented in their cars by blue dots on the roads, Sim Tower has individualised them as recognisable human beings. They get up in the morning, they go to work, they take lunch breaks, they go out in the evening, and go to bed at night.

In a fascinating voyeuristic touch, you will be able to 'select' one particular Sim, who will then be highlighted in blue, so that you can follow its movements throughout the day and night.

As in SimCity, your tower needs to be a desirable place to live and visit and it needs to be profitable. As you build more storeys upwards and outwards, various strategies present themselves.

Should you put all the shops close together to create a 'mall' within the tower, or mix up residential and commercial units so that no-one has to travel too far to work or to shop? What sort of balance between residential and commercial areas works?

Crucial to the smooth running of your tower is communications. Where SimCity 2000 had

road, rail and subway, Sim Tower has lifts (actually, as this will be published as an American program, it has elevators). The bigger your skyscraper, the more lifts you'll need and you'll need to position them strategically so that long queues don't form. If the Sims have to wait too long for the lift, they will gradually turn red with frustration, and may eventually move out, or stop using the tower.

As in all the best Sim games, Sim Tower is also a game of disasters just waiting to happen. Here, your skyscraper can become a terrorist target, hit by earthquake, or fire. Or need to be evacuated for a VIP visit, or you could get cockroaches on some of the floors.

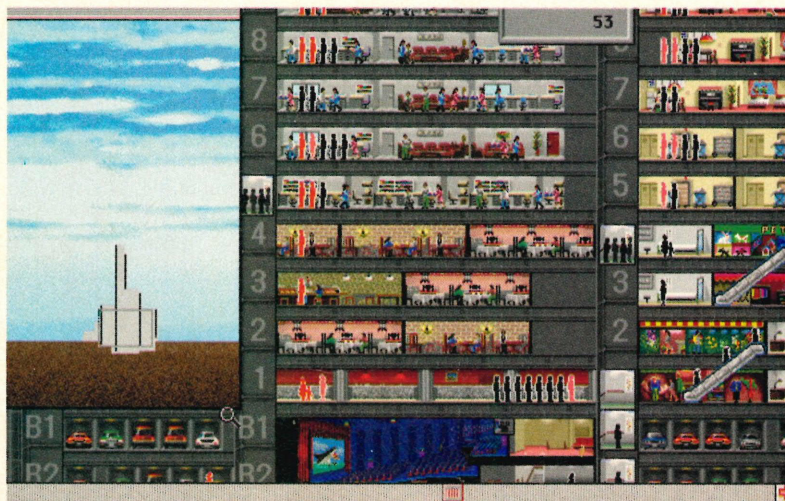
At first, Sim Tower seems to be like building and owning a doll's house. Then there's the peeping tom aspect of watching the Sims at work and play. It's like getting inside one of those arcologies and controlling what goes on: a sort of SimCity within SimCity.

• Due for release on disk and running under Windows initially. Releases dates are still to be finalised.

**Above and left: Building up the storeys of your skyscraper in Sim Tower will be as involving and challenging as all the other Sim games that have gone before.**

**Below: Down in the basement cinema some lucky Sims are catching the latest showing of Jaws. Meanwhile up on the eighth floor other Sims are turning red with frustration as they wait for the lift. Grrr!**

"Sim Tower gives you a glimpse into the future as Maxis sees it. Sim City fans should love it."





## News from CES

# Command and Conquer

Westwood/Virgin

Based on, or inspired by, Dune II, Command and Conquer takes the engine used for Dune II and a new storyline to create a mighty impressive looking CD-ROM game with fully rendered 3D graphics, and a memory efficient technique called 'artefacting' to create the landscape and fast action.

The new artefacting technique employed in Command and Conquer, creates vast areas of rolling landscape.



scape is used many times at different angles and sizes to create, say, dense jungle, or desert. The game will also boast the ability to link more than one player by modem.

The Dune II engine has been fine-tuned as well: so your computer opponents are more cunning. For example, if you need to cross a particular bridge to complete one stage, you may find that they could blow the bridge up if they get there first.

Command and Conquer looks fantastic and coupled with the Dune II engine, this is definitely one to look out for.

• Due out in November on PC CD-ROM

# Cyberia

Interplay

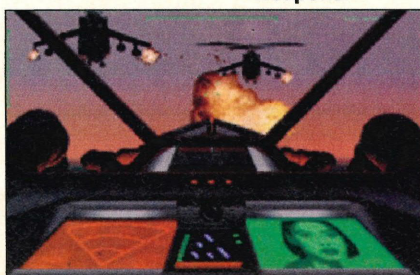
Lavish production values are the most instantly noticeable characteristics of this CD-only game being developed by Xatrix Interactive Design for Interplay. No expense is being spared to produce a game which promises to be stunning visually and spectacular aurally.

All the graphics are rendered in 3D, and for the characters, Xatrix has used rounded, modelled, synthetic 'actors', with digitally captured movements used as the base for the animation. Thomas Dolby's Headspace company has been brought in to produce the sound effects and musical score. And all this technological lushness is being used for a multi-mission game. You, the hero, must reach the ultimate doomsday device that lies beneath the frozen wastes of Siberia before the global terrorists get there.

What this means in terms of gameplay is that in true James Bond style, you get to try out all manner of sophisticated means of transport, from the fast car, to the high speed jet, to the hydrofoil, travelling very fast indeed, blasting the baddies to bits, and dodging enemy fire. Once you've survived this part of the mission, you move indoors to continue the mission with a more puzzle-based set-piece to solve before it's off for more arcade style action.

And if you don't much like the sound of sitting down to do puzzles in mid-

In the interior scenes of Cyberia your character is fully under your control, so when flying you can concentrate on firing your weapons.



mission, rest assured that you will be able to tweak the balance between action and adventure style play. Currently the developers are working on a system whereby the game style has a notional four points which you can weight one way or another: a 3:1 ratio in favour of an arcade style will make the puzzling bit very simple; 2:2 puts the puzzles at a middle level, and so on. This weighting will be selected before you start playing.

Still very much in the works, Cyberia has some way to go yet, but however it develops, this game is going to be big, and it's going to set very high standards of presentation.

• Due out on PC CD-ROM only 'early' next year (PC Review's insider tip is for an Easter release).



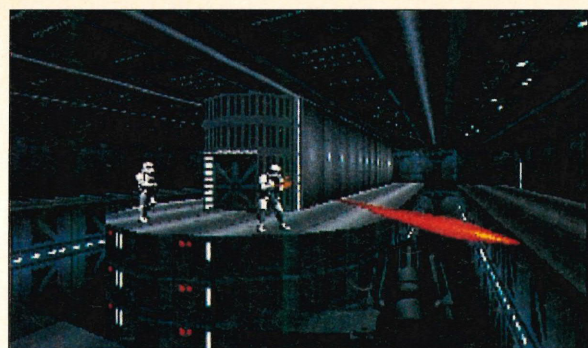
# Dark Forces

## LucasArts

I think you'd better sit down to read this: Dark Forces is a software dream ticket: a Star Wars game played with a Doom-derived game interface. So, yes, you play from a first person viewpoint with a whole arsenal of different weapons, picking off Darth's minions. Game heaven probably looks a bit like this.

There were a lot of games 'inspired' by this year's blockbuster, Doom, at the Consumer Electronics Show, and LucasArts'

can probably be trusted to come up with one of the most powerful contenders. The Dark Forces team invited Doom designer John Romero on to the stand to try out the game for himself and deliver his verdict. Before spending a good half hour defending the Rebels' cause with his plasma assault rifle, ion gun, and the like, Romero ventured to comment that having to fit the game into the Star Wars canon was a bit restrictive. Afterwards, he announced to the assembled Lucas troops, "Wow. I love it." Trebles all round.



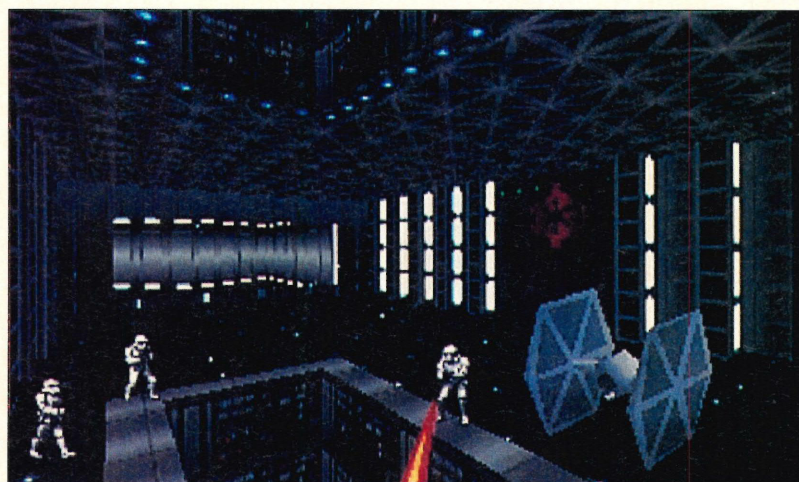
In the game you are a special agent on the Rebel Alliance's covert intelligence team. Your mission is to infiltrate an Imperial Star Destroyer in order to find and capture the plans for the Empire's new battle station, the Death Star.

Your character moves through 360 degrees, and can look up and down, can jump or duck to avoid enemy fire. There's the auto-mapping feature, quick access to mission briefings for a recap, and you can select various difficulty levels too.

Add in the 3D texture-mapped and shaded graphics, the original digitised Star Wars sound effects and full speech, and you have a potentially mind-blowing game.

• Due out before Christmas on PC CD-ROM.

"Dark Forces is a software dream ticket: a Star Wars game played with a Doom derived interface."



A new style cartoon adventure from LucasArts, Full Throttle looks like being both graphically and game-playingly good.

The news that a new cartoon style adventure is on the way from LucasArts is usually enough to bring on the bunting and the street parties. Full Throttle, however, moves away from Sam & Max and Tentacle territory in that it's quite a bit darker, both literally and in terms of subject matter, and it's not as funny.

The easing up on the laughs is deliberate; this tale of a biker hero and his quest to clear his name concentrates more on the action. Ben, the main character who

despite his name is a macho, leather-bound hulk, is leader of a motorcycle gang called the Polecats. He's been unjustly accused of the murder of Malcolm Corley, head of Corley Motors, which is the last motorcycle manufacturer in the land and thus integral to Ben's lifestyle. You join Ben on the run from the law, on the trail of the true killer, with a subplot involving Corley's daughter. The action includes motorcycle gang fights, and first person perspective road chases.

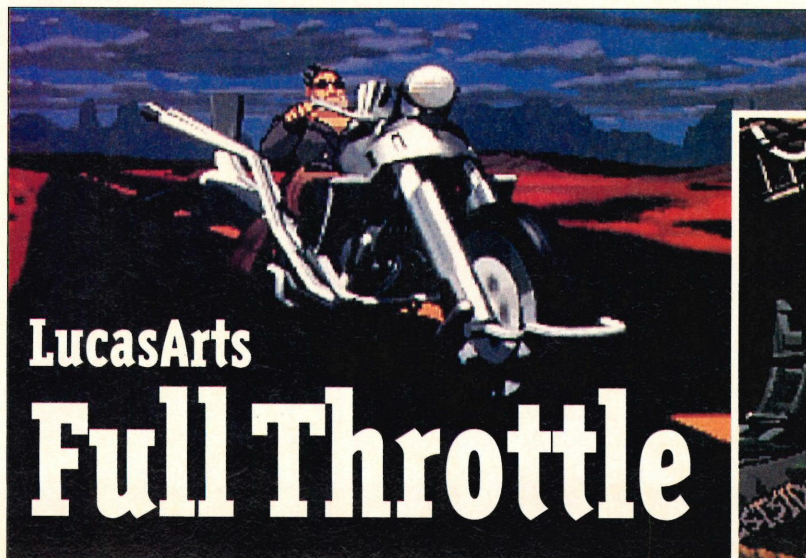
Having said that Full Throttle follows on from Sam & Max and Tentacle, I should in all fairness point out that the graphic style

is more of a smoothed-out version of the former than the surreally bendy Tentacle screens. The action switches frequently from third person to first person viewpoints, and it manages to blend in 2D and 3D graphics smoothly.

It also, in an already testosterone-rich game, includes a built-in screen saver (as did S & M) which displays the 3D rendered futuristic vehicles which feature throughout the game.

If you like your games mean and moody, make sure you have a CD-ROM drive ready for the release of Full Throttle.

• Due for release just before Christmas on PC CD-ROM.







Virgin /  
Westwood

## Kyrandia 3:

## Malcolm's Revenge

**B**oth Westwood's previous Kyrandia adventures had a bit of an image problem. Brandon, the hero of Legend of Kyrandia, was a wimp. Xanthia, star of Hand of Fate, could have beaten up Brandon with her eyes closed, but she had no dress sense. In Malcolm, the jester from Kyrandia 1, Westwood may well have found their man.

Malcolm takes centre stage in the third program in the series, and the main hook for Malcolm's adventures is that he is no saint. His 'devil' sits on his shoulder taunting him to ever more mischievous and malicious deeds. And one of the delights of Kyrandia 3 is that you experiment freely with all sorts of mischief and even if you don't move the story along too fast, you will still see cause and effect on-screen. Furthermore, Malcolm is a master of disguise, so he can take on the form of many of the characters he meets along the way.

Players of the first game in the series will remember that Malcolm was turned to stone in the finale. Struck by a freak flash of lightning, Malcolm breaks free at the opening of Kyrandia 3, and sets out on a trail of revenge and getting even with those who imprisoned him.

Kyrandia always was a visual treat, but with graphics rendered in 3D Studio, this third program is even more beautiful and since it's on CD-ROM, you get fully digitised speech as well as the new soundtrack.

- Due for release in November on PC CD-ROM.

## Loadstar Rocket Science

**R**ocket Science is a fairly new US software house which has collected together some pretty hefty talent in the entertainment business: Ron Cobb, designer on Aliens, The Abyss; Tony Payne, who has production credits on Kiss of the Spider Woman and Madonna's Truth or Dare; and of huge interest to PC games players, the ex-LucasArts designers David Fox and Brian Moriarty. Fox was designer of Indiana Jones and the Last Crusade, Zak McKracken, Labyrinth and Rescue on Fractalus, while Moriarty created Loom, and before that, in his Infocom days, Beyond Zork, Trinity and Wish-bringer. You can see that this is a company that means business.

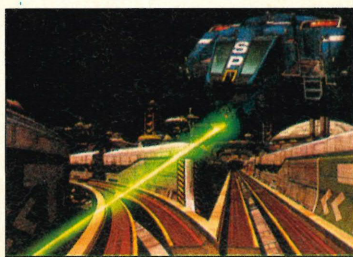
There are two PC games currently in development, Loadstar and Cadillacs and Dinosaurs. Cadillacs is a driving game based on the graphic novels of Mark Schulz, while Loadstar is a science fiction epic.

The Loadstar in question is a spacecraft operating from a base on the moon in the 22nd Century. You play skipper Tully Bodine, on an assignment that verges on the illegal, so you need to move quickly through the space traffic without attracting the attention of the galactic sheriff.

Loadstar's immediate hook is the graphics and the speed at which the game runs. Superficially, it looks like Rebel Assault territory, but that's got more

to do with the colour schemes than anything else: there's full motion, full-screen video sequences in here and a CD quality soundtrack. You'll need a 486, a double speed CD-ROM drive and a local bus machine to run this at the level it deserves.

- Due before Christmas on PC CD-ROM.



## Interplay Stonekeep

In the August 1993 edition of PC Review, we wrote "Due out in October" under Stonekeep. And indeed it is. But I think Interplay meant October 1993 at the time. Stonekeep has undergone so many revisions and rethinks since then that it's hard to keep track; most significantly, it's now CD-ROM, rather than disk-bound. The core of the game is still the same: it's a full-screen, first person role-playing game, with heaps of rendering, and digitisation for the graphics and characters, so that the player really has a chance to suspend their disbelief that they're 'in there' mixing it with the monsters. It also has a thumpingly atmospheric soundtrack, and your accessory screens (choosing protective clothing to wear, picking your spells and weapons) are available via a pull-down window.

Despite the delays, Stonekeep still looks like a game that has the potential to be great. It has great atmosphere, it is intuitively easy to move around and work the interface (it's aimed at the 'non-technical' role-player), and it has bad guys galore. We haven't had a decent RPG for a while, so let's hope Stonekeep fills the gap.

- Due out (ahem) in the autumn on PC CD-ROM.



## Under a Killing Moon Access

hey've started, so they'll damn well finish. What set off as a fairly straightforward idea — a cinematic adventure on CD-ROM — has stretched into a state-of-the-art technological masterpiece sprawled across four CD-ROMs. What is Access on?

I use the term technological masterpiece advisedly. Whatever Killing Moon ends up like as a computer game, it will be a technological masterpiece, in the same way that 7th Guest was a technological breakthrough product.

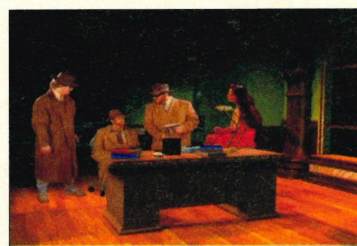
I visited the Access stand at CES last month for my first glimpse of Killing Moon since January. After taking a turn at the controls and playing some of the sequences, I came away reconverted. Mind you, I don't know how many of you have a Pentium PC with a super fast CD-ROM drive, but the game is there, the interface works smoothly, and the techie stuff is great.

The digitised actors sit, stand and move seamlessly against the 3D Studio rendered backgrounds as if they were really there. The atmosphere's terrific and makes you want to progress just a bit further all the time.

But . . . I think you will need a really high end PC, not just a 486, but a 66MHz 486, or a DX4, to do this game justice.

Killing Moon will be wonderful, but you'll buy it for completely different reasons than other adventures that don't nail their rendered and digitised colours quite so brazenly to the mast.

- Due out in September on four (yes, four) CD-ROMs.

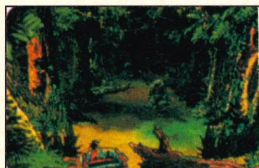




# Coming Soon

## Cadillacs and Dinosaurs Rocket Science

Racing game set in a world in which all the creatures which ever lived still roam the jungles, so your 1953 Cadillac must avoid not only the usual predators, but the odd T Rex as well. Based on the works of Mark Schulz, RS calls this graphic style 2.5D.



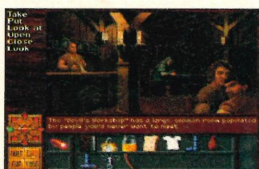
## Cyberjudas Merit Software

The follow-up to Shadow President is a game of military and political power set in the future. You are the president, controlling the most powerful nation on earth. One of the six members of your Cabinet is a traitor — but which one? Due out this autumn.



## Death Gate Legend

Steve Meretzky's latest games parody takes on the RPG genre. Thus we have character attributes such as "able to identify pizza through the cardboard box", and strengths such as "holds world water-treading record". Note the swanky 256-colour graphics.



## Dreamweb Empire

An arcade adventure style game which takes you into the murky world of the subconscious. You play Ryan, a man on his own against the force of evil that is threatening to take over the Dreamweb. Or something like that. Due out in September.



## Doom 2 Id

Or possibly Doom 1.5. This uses the same engine as the original, but there are lots of new monsters to despatch to oblivion, and new rooms and locations to stomp around. For those who want something completely different, hang on for Id's Quake, due out next year.



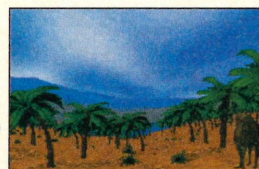
## Dungeon Master 2 FTL/Interplay

With 256-colour graphics, the sequel to the first person role-playing game oozes with statistics, characters and dungeons. The game engine has been enhanced too, with enemies now far more 'intelligent' than in the original. Due out in October.



## Elder Scrolls: Daggerfall Bethesda Softworks

Elder Scrolls: Arena was Bethesda's first attempt at an RPG and high successful it was too, with its 'go-anywhere', 'try anything', style of play and rich storytelling qualities. Daggerfall brings similar gameplay to a new backdrop and cast of characters.



## Interactive Compton's New Media

One of the more interesting of the new Reelmagic-based titles is this, an interactive challenge featuring the artist formerly known as Prince. There is a story to follow, and over 50 CD videos, including some recorded specially for this CD-ROM.



## Discworld Psygnosis

Terry Pratchett's novels are being brought to the PC by Psygnosis as graphic adventures. The first, Discworld, takes place over 80 locations, with Eric Idle doing the voice-over, CD quality speech and hand-drawn style graphics. Due out before Christmas.



## Kingdom: the Far Reaches Interplay

A role-playing game for beginners, Kingdom has all the illustrative touches you would expect from the ex-Dragon's Lair graphic team. Your challenge here is to piece together all the pieces of a hidden amulet. Due for release in October on CD-ROM.



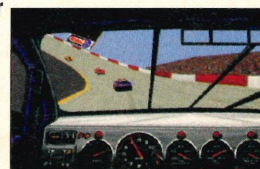
## Master of Magic MicroProse

By the same team which produced Master of Orion, Magic combines exploration, combat, spell-casting and strategy in a fantasy world setting. MicroProse has had mixed success with role-playing style games in the past, but this one looks very interesting.



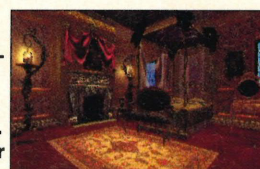
## NASCAR Racing Virgin Interactive

This official NASCAR Racing game comes from the same team, Papyrus, which developed Indycar Racing. The vehicles have that distinctive Indycar look and the tracks are authentically drawn. It also includes a Paint Kit, so that you decorate your favourite motor.



## Phantasmagoria Sierra

Lush interiors, beautiful graphics, a turn of the century setting on an island mansion and a woman fighting against the forces of evil. Roberta Williams is back with this adult horror story, chock full of cinematic production values. Due out in October on CD-ROM.



## Sim Earth (CD version) Interplay

It's big, bright, and now you can really get down among the creatures on the planet. Interplay has taken the old Maxis game and added a good dollop of humour — now each stage of evolution is shown cinematically, so you'll see insects on their mopeds, for example.



## Star Crusader Gameltek

Wing Commander has a lot to answer for ... now you can develop your space strategy in full 3D, with 11 different ships under your command. Set up your armies for stealth or all-out pillage, accompanied by a four-track musical score and close-up combat.





# PC REVIEW Recommended

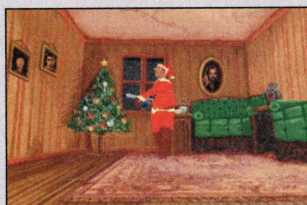
We don't give PC Review Recommended awards to many games, but you can be assured that those that do get this accolade will be, in our opinion, outstanding in all areas. A PC Review Recommended award is a guarantee of excellence.

## The Recommended scheme

Not only do you have the advantage of knowing that Recommended games are currently the best in their class, but we give you the chance to win a copy of each PC Review Recommended title. We have five copies of each newly Recommended game to give away to the winners of this competition.

## PC REVIEW'S NOTORIOUS 9'S

In 35 issues, we've reviewed over 500 games, of which only 25 have received the prestigious nine out of ten (and nothing has yet been rated ten). Here are the games:



Alone in the Dark  
Alone in the Dark 2  
AV-8B Harrier  
1942: Pacific Air War  
Chessmaster 3000



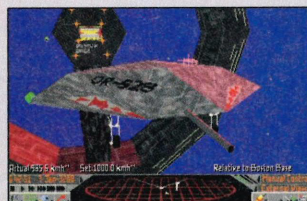
Monkey Island 2  
IndyCar Racing  
Jimmy White's Whirlwind Snooker  
Rebel Assault  
Sam and Max CD



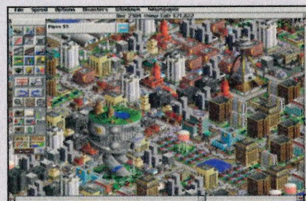
Syndicate  
Chessmaster 4000 Turbo  
Doom  
Day of the Tentacle



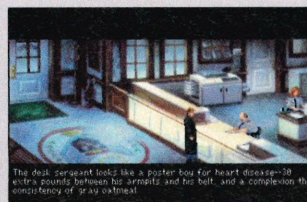
Myst  
Sensible Soccer  
TFX



Frontier: Elite II  
Falcon 3.0  
Indiana Jones and the Fate of Atlantis  
Gabriel Knight



Sim City 2000  
Tornado  
Ultima Underworld  
Theme Park



## No recommendations?

There's no Recommended competition this month, since we didn't give anything a nine rating. Instead, we've given you a complete recap on all the games given the Recommended accolade in PC Review's history. And a thoroughly worthy bunch they are too.

However, just because a game doesn't get nine out of 10, don't dismiss it out of hand. We're very stern markers here at PC Review, and we consider a title rated seven as being a good game, so you should certainly consider it, especially if you like games of a similar type. Any game rated eight is well worth a look — the margin between eight and nine is really very small.

## THE PC REVIEW PLAYLIST

We've ranted about a fair number of games this month, and raved about a very select few. But what are the titles currently taking pride of place on our hard drives, and keeping us at work late into the evenings?

### Christina Erskine

When the chance to visit CES in Chicago came up, Christina was straight in there with the "I'm the boss so I'm going" gambit. Her game of the show was Sim Tower from Maxis, who she profiles on page 40.



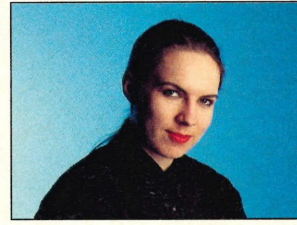
### John Bennett

Never one to turn down a game with guns in it, John has been blowing up Rebel X-Wings in LucasArts' TIE Fighter. He expressed some reservations about having to shoot the good guys, but it never stops him.



### Cal Jones

Cal plumped for reviewing the Chaos Engine, which she claims is the best PC arcade game for ages. And she's still playing Theme Park. "I'm compiling some tips for it, aren't I?" was her excuse. Typical.



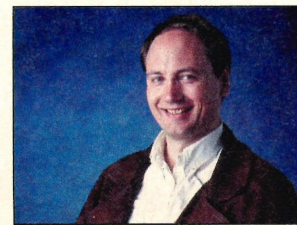
### Dean Evans

Dean is getting ready to move over to our sister mag, PC Games, but he nevertheless managed to find time to don his flying hat and goggles to play Virgin's World War II flight sim, Overlord, reviewed on page 63.



### Simon Shaw

Strategy buff Simon Shaw has taken time out from promoting his new crime novel, The Villain of the Earth, to review Harpoon II (page 64) and Outpost (page 56). Keep an eye out for Simon's Outpost tips in the next issue.





## REVIEWED THIS ISSUE

### ON DISK

<b>The Chaos Engine</b>	<b>Renegade</b>	<b>8</b>
<b>Harpoon II</b>	<b>Electronic Arts</b>	<b>8</b>
<b>On the Ball</b>	<b>Daze Marketing</b>	<b>8</b>
<b>TIE Fighter</b>	<b>LucasArts</b>	<b>8</b>
<b>Outpost</b>	<b>Sierra</b>	<b>7</b>
<b>Overlord</b>	<b>Virgin</b>	<b>7</b>
<b>Tactical Manager</b>	<b>Kompart</b>	<b>7</b>
<b>IndyCar Tracks</b>	<b>Virgin</b>	<b>6</b>
<b>Soccer Kid</b>	<b>Krisalis</b>	<b>6</b>
<b>The Grandest Fleet</b>	<b>Mirage</b>	<b>4</b>
<b>Kick Off 3</b>	<b>Imagineer</b>	<b>2</b>

### ON CD-ROM

<b>Beneath a Steel Sky</b>	<b>Virgin</b>	<b>8</b>
<b>MicroProse Sports</b>	<b>MicroProse</b>	<b>8</b>
<b>Sid Meier CD Edition</b>	<b>MicroProse</b>	<b>8</b>
<b>Castles II</b>	<b>Interplay</b>	<b>7</b>
<b>Shadow of the Comet</b>	<b>Infogrames</b>	<b>7</b>
<b>Litil Divil CD</b>	<b>Gremlin</b>	<b>6</b>
<b>Privateer</b>	<b>Origin</b>	<b>6</b>

## PC REVIEW RECOMMENDS THE BEST OF THE LAST THREE MONTHS

### Theme Park Electronic Arts, £44.99

Ever fancied owning your own fun fair? Theme Park lets you do just that, but it isn't just about building rides. You have to keep the punters happy, settle pay disputes, wheel and deal on the stock market and even eject vandals from your park. Bullfrog's chronically addictive sim will keep you playing into the wee small hours.



### Myst Electronic Arts, £44.95 CD-ROM

Cyan's refreshingly different adventure combines breath-taking, ray-traced graphics with original and fiendish logic-based puzzles. The game takes place in five beautifully surreal worlds, and the object is to explore, unravel mysteries and find your way home. Myst has a uniquely tranquil atmosphere, and is suitable for all ages.



### 1942 Pacific Air War MicroProse, £44.99

Already looks like a very strong contender for flight sim of the year, PAW combines flawlessly texture-mapped, smooth shaded aircraft with first rate aerial combat.



It has a couple of novel tricks up its sleeve as well: not only can you swap from plane to plane in your squadron at will (and in the middle of a dogfight or torpedo run), but you also get to control entire task forces in any one of four campaign scenarios from the Pacific theatre. This means you get to plan the moves of carriers, transports, cruisers and frigates — and get to bomb the hell out of them, too.

## CIARÁN'S RANT

I like sports games you know... I also like flight simulations... I also like war games and platform games and beat 'em ups and adventures. Most of all though, I really like new games.

No matter how good some of the old games on my software shelf are (and some of them are very good — and, in the case of The Sentinel and Rick Dangerous 2, also very old) they still find it difficult to compete for screen time with the stream of young pretenders which come along constantly.

That's not to say that I don't succumb to pangs of nostalgia every now and then and load up a classic or two (it has to be said that X-Wing has rarely been off my hard drive since the day I got it), but even these sessions can be brought to a premature close if I spot the shine of an unbroken shrink-wrap peeking from under a pile of papers on my desk.

However, while many of you will think that I should be eternally grateful for having this constant supply of new product to feed my addiction (as indeed I should), there is also a downside to being on the end of this digital deluge. You very rarely get to see anything original.

You disagree, maybe? Well let's have a look at a recent issue of PC Review to see if the content of that backs me up. Let's see ... featured on the tips pages we have, among others, Myst, Beneath a Steel Sky, Rebel Assault and Mortal Kombat.

Now on the surface at least, there doesn't seem to be too much of a problem with this selection: they all look great and play very well, but that's not what we're looking for here. The only thing that interests us at this point is if any one of them offers a truly new gaming experience. And I would argue that none of them does.

Myst? It's undeniably beautiful — in terms of both graphics and sound — and it's also extremely captivating, but at its heart it's really just another adventure game whose roots can be traced right back to the days of 'go left', 'go right' text adventures.

Beneath a Steel Sky? Once again, a good story and, in software development terms, a near-flawless package — but is it really a giant leap forward from, say, the early Sierra animated adventures?

Rebel Assault? Heaps of praise has been lavished on this one's graphics and sound, but where's the advance in gameplay?

Mortal Kombat? A beat 'em up with more realistic characters.

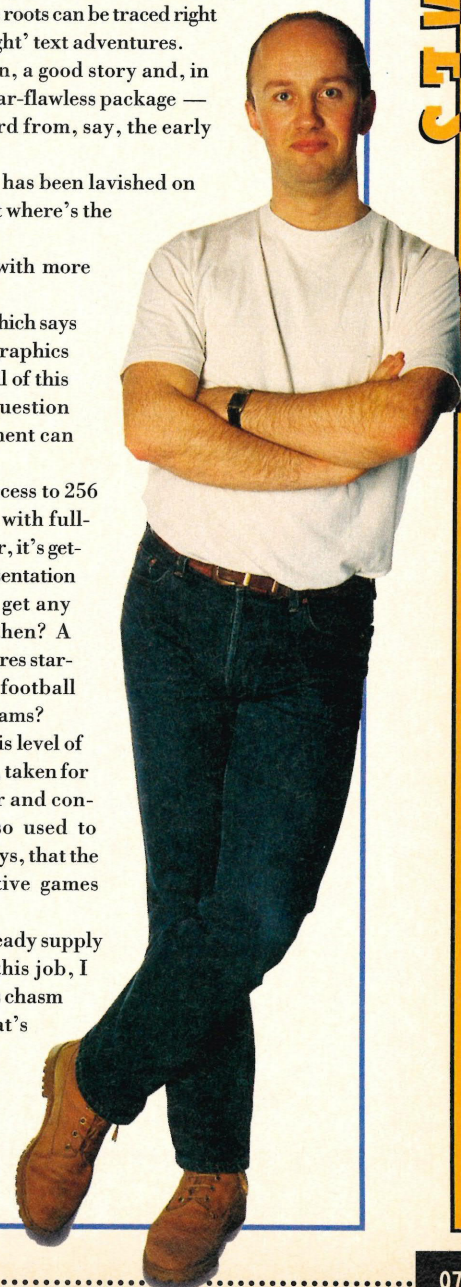
There is a very sound argument which says that the general improvement in graphics and sound is enough to warrant all of this recycling of old ideas, but the question remains as to how long this argument can remain viable.

After all, most of us now have access to 256 colours and stereo sound — and with full-motion video just around the corner, it's getting to the point where soon the presentation of games simply won't be able to get any better. And what will happen then? A stream of beat 'em ups and adventures starring different actors? A separate football game for each of the world's top teams?

Of course not, but by the time this level of realism becomes accepted, indeed, taken for granted, both the game developer and consumer alike will have become so used to accepting old stories told in new ways, that the talent to produce truly innovative games simply won't exist.

No matter how much I love the steady supply of games which comes as part of this job, I have to say that there is a enormous chasm between what's truly new and what's merely novel — and, for the foreseeable future at least, we PC gamers will probably have to make do with a steady supply of glittering novelties.

■ Ciarán Brennan





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**CU**

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# IN THE SEPTEMBER ISSUE OF THE ONE...

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## THREE KNEE-TREMBLINGLY BRILLIANT DEMOS!



### RUFF 'N' TUMBLE

Find out why we awarded this amazing platform blast-'em-up a whopping 91 percent with our totally exclusive demo.



### PUTTY SQUAD

Drive yourself insane with this completely bonkers follow-up to Putty. Platform games will never be the same again. Ever.



### DRAGONSTONE

Hack and slash and kill your way through Core's latest arcade adventure in this huge fully-playable demo.

## WE NAME THE BRAINIEST PROGRAMMER IN BRITAIN!

Discover who knows the most about coding as we quiz 10 of the finest Amiga programmers. We think you'll find the results pretty interesting...

**"Erm... I have no idea"**

Programming god Andrew Braybrook concedes that our questions are a bit too tough even for him.

**"Er... I don't know"**

Shaun Southern, programmer of Kid Chaos and the Lotus trilogy, wishes he'd spent a bit longer revising.

**"Can we come back to that one?"**  
Peter Molyneux, creator of Syndicate and Theme Park, finds things tougher than he expected.

**"I'll have to pass on that one."**  
Jason Perkins, Ruff 'N' Tumble's programmer, wishes he'd never agreed to participate.

**"I've got no idea. I never use the operating system, you see."**  
Mike Montgomery, The Chaos Engine's programmer, tries to disguise his lack of knowledge with some flim and some flam.

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periodicals containing  
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specific readers  
completely and  
utterly useless.  
**Or something.**

Please note: details are correct at time of going to press.  
Especially the bit about the cover. And the demos. Obviously.



# the **PRODUCT** directory





Reviewed this month

# PRODUCTS

**I**

t may not be on the scale of a house or a new car, but the home PC makes a sizeable dent in any wallet. However, the sheer enjoyment and convenience of the PC is enough to justify the initial outlay, and the extra hardware and software you suddenly find you just have to have.

That's fine. Nobody minds spending money on something worthwhile. On the other hand, if you make the wrong decision you could end up throwing good money away on something you don't want, don't need and certainly won't like. With the sheer number of PC products arriving daily, usually to a fanfare of technical gibberish, it's all too easy to make a mistake.

That's how this section is going to help you — summarising the effectiveness of new PC products in a direct and straightforward way, free of jargon. This will point you in the direction of that essential gadget, and warn you off the badly made, the unsuitable and the ill-conceived.

Many PC products are just not designed for you and me to use, they're still aimed at companies and offices. In a company, you don't choose what sits on your desk, you don't have to pay for it, or fix it when it goes wrong. A specialist does it all for you.

That doesn't happen at home. So, until there's a wholesale change in the type of equipment we're sold, you need to be able to distinguish what is important about PC hardware and software, and what is just marketing guff. When you buy a car you don't need to know how a 16-valve engine works right down to the last rivet. You need to know how quick it is, how well it performs and whether it's likely to fall apart on you. The same is true with the PC, and that is what we aim to provide in these pages.

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### The rating system explained

The products in the following section are marked out of five:

★ Dreadful. Don't touch with a barge pole.

★★ Usefulness is probably limited, but could be suitable

for specific need.

★★★ Generally good; some limitations

★★★★ Good. Should go on anyone's shortlist to buy

★★★★★ Superb, either outperforming or offering fea-

tures that other products can't do.

Ease of use, ease of installation, value for money and sheer performance are the most important factors we take into consideration.



# Product directory

With a new field of top-end products in the sound card for games players market, John Bennett, Martin Klimes and their team of testers explore the four big names to see which, if any, gets a sound-thrashing.

## Four of the Best

**D**espite scare stories of hardware conflicts and software incompatibility, a sound card can be the hero of your computer. Good quality sound adds life to your system and fills your games with tension and excitement.

The four cards on test here — the UltraSound Max, the AWE32, SFX Classic 3000 and the SoundWave 32 — are the top end of the PC sound card scale.

But a basic card can be bought for as little as £50 and handles all the day to day duties you'd expect of it. So, if you're going to shell out a hundred

or even two hundred quid over the odds, then you have to be getting something special.

The first problem is figuring out which features stand out and deciphering the salesman's spiel, since at the top of the aural heap sound cards are shrouded in enough technical jargon to make your head spin.

### The jargon

Sound cards have got to such a stage that the old 8-bit Sound Blaster and Ad Lib cards are becoming a distant memory. Even emulation of them is likely to be completely superseded by a 16-bit standard in the year ahead.

They relied on FM synthesiser technology which digitally simulated a given sound, and not very well at times. Wavetable cards, such as the four we are looking at, use a library of real sounds, which can avoid the plinky 1970's Casio keyboard effect and offer lush, realistic tones.

Unfortunately, not every game is written with sound for wave tables, and if there isn't support for your card you have to hope the FM synthesiser emulation (usually Ad Lib or Sound Blaster) is up to scratch. That's not always the way it is which causes problems, as we shall see.

The third type of sound your card may use is MIDI (Musical Instrument Digital Interface) and its various guises, which is popular with musicians because it represents each sound in its nuts and bolts form. Instructions are sent explaining how the sound is made up, and these are then followed by the card, so giving an infinite variety of sounds. Many games also run MIDI sound as an option for music, using FM synthesis emulation for sound effects.

### Our categories

There are several key categories which will be considered when looking at the four contenders for the title of top games sound card:

- The opening section is on installation: how easy the process is, and whether there are any potential headaches.
- This will be followed by a breakdown of the quality of sound each card has in native mode. Emulation modes (specifically Sound Blaster and General MIDI), are also discussed, each card uses a different method to produce these vital emulations.
- Each card was also tested against an exhaustive list of games, to check



The Sound Blaster AWE32 is a big card from Creative, the designers of the original Sound Blaster. They hope to turn their 16-bit system into the continuing industry standard for emulation.



The UltraSound, by Canadian company Advanced Gravis, was the original wavetable card, and the UltraSound Max continues where it left off. It's another biggie, totally unmistakable in its maple-leaf colour.



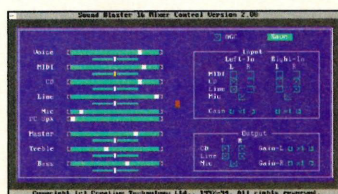
the support for games (including talkie CDs like Day of the Tentacle). After all, there's no point having a card that sounds wonderful but isn't supported or, worse, causes all your software to crash.

- Lastly, we will examine the bundled software that comes with each package. Are the utilities you get worth anything more than the disks they're put on?

- There's an overall verdict to round things off, with the vital statistics on each card.

## How they install

Let's start with the AWE32. Packaged with what appears to be a manual for every occasion, you'll never be short of written words to guide you through any problems that crop up. They aren't badly written either, being fairly clear and organised into easy to find sub-sections.



Each card offers its own method of controlling the output side of the sound generated. The AWE32 has a program called SB16SET which does all sorts.

Not that you should need them much. Installation is blessedly simple, with a Getting Started booklet full of DIY style diagrams and charts.

The card itself is so long that if you have a crowded PC architecture, and many are, then you might well have hassle getting it to slot into its rightful place.

The UltraMax is also a behemoth of a card, which raises the same problems of insufficient room inside your PC. It doesn't have the benefit of quite as good manuals to help, but at least they're concise without being uninformative.

There seemed to be more jumper play involved with hooking up a CD-ROM drive to the interface with the UltraMax, but in its favour the installation program is very good and makes the software installation side of things very simple.

The Orchid is shorter by only having connectors for Sony or Mitsumi CD-ROM drives so if you're a Panasonic drive owner, then tough.

It only has two booklets with it, one covering the bundled utilities, and one on the card itself. In this you'll find a short section on installation which covers the basics of getting yourself set up, although there isn't a very large troubleshooting section if things go horribly wrong.

Perhaps they know that they're onto a good thing, because we ran into no problems at all with getting it to run. Orchid has the closest to a plug and play card among the four. You still need to follow the installation procedure, but the frustration that might have come when it rejects your settings failed to materialise.

Similarly, the Bluepoint card is another one disk wonder. Installation is guaranteed stress-free, although the manual could be a bit more forthcoming about certain installation parameters.

Overall, then, the SoundWave 32 comes out a winner here, although the SFX 3000 gave the Orchid a close run for its money. The UltraMax and AWE32 didn't present any major problems but are unwieldy by

virtue of their size, installation-wise.

Installation all round was less of a bugbear than anticipated, a good sign for PC users everywhere.

## How sound

Kicking off with the UltraMax, the sound in native mode is nothing short of breath-taking. The sound is good and bassy, which is important if you don't have specific bass bins in the speakers. Otherwise thumping drums can so easily turn into annoying treble-heavy snarls.

32 voices and a 5.6Mb general MIDI patch set mean that there are all sorts of possibilities for programmers who want to plan with this card in mind. All you need to do is load up Doom and wait for the grunge guitar to kick in to see what I mean. It may keel over and die after a minute, but sounds spookily good till then (see the 'As a games card' section for more details on games compatibility).

By comparison, the General MIDI and Sound Blaster emulations are perfectly competent but nothing to get excited about.

More developers are currently adding UltraSound support to their games. Just a quick poll of the office software collection produced over 30 titles immediately that claimed to support Gravis in native mode.

The Orchid, for its part, doesn't actually have a native mode. Instead it is a specialist in offering the best that any other format has to offer, although a PCM hardware-based wavetable add-on like the system used on the SFX 3000 is promised for the coming months.

8Mb of General MIDI samples offer a great range of sounds for the General MIDI/Roland emulations,

although the consensus was that the quality wasn't as high as the SFX 3000. It was crisp and clear, but a little too airy to carry much weight in things like the Terminator 2 music.

The SFX 3000 offers something a little bit different in its wavetable system. Instead of using DSP (software based) tabling, which can't always cope with the throughput of sound, it uses the PCM hardware to process the sound (see PC Review, issue 32).

The card has a native mode: unfortunately, it's brand spanking new, and there's only one game out there to support it so far — FIFA International Soccer. What can we say? It works, it sounds OK, but it's hardly a fair test sampling. We'll just have to wait until there's more widespread support.

The SFX 3000 has no problems with getting an 8-bit Sound Blaster emulation, but it's a somewhat tinny sound that gets churned out.

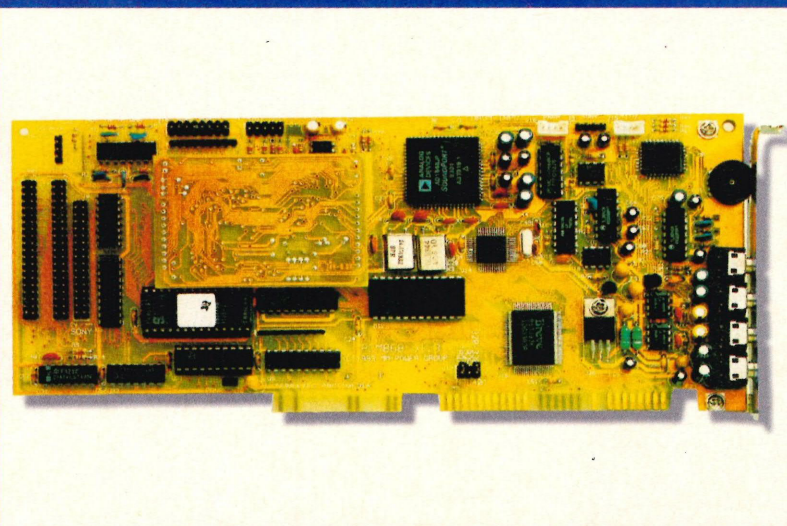
This gets particularly annoying when running the first class General MIDI/Roland music emulations (thoroughly full-bodied with an excellent range) with Sound Blaster sound effects. A squeaky voice doesn't suit Darth Vader.

What it needs is a Sound Blaster Pro emulation. This is widely supported by designers nowadays and is a heck of a lot better than the treble-heavy pips, bleeps and crackles that the original 8-bit card put out.

Creative's AWE32 Sound Blaster emulation is a similarly muddy sound, but that's indicative of 8-bit cards, and not the fault of the hardware. However, the card has a wide range of superior Sound Blaster



Finally, we'll be taking on board the Bluepoint SFX 3000, a thoroughly impressive newcomer, using hardware rather than software wave tabling, which we'll



As for the Orchid SoundWave 32, it's only half the size of either of the cards above, but has won itself a reputation as a great-sounding, easy to install piece of equipment.



emulations to choose from.

For native mode, other features on-board include reverb and chorus to flesh out the tones on the sixteen sound channels, all handled laudably well by the chip, an EMU8000.

1Mb ROM of sound samples isn't a huge amount for full-bodied and varied sound, but the 512Kb of RAM can be upgraded to 28Mb. And with the full gamut of Sound Blaster options covered, the slightly flaky Roland/General MIDI isn't such a problem, although the 32 voice Advanced WavEffects Synthesis feature does make the MIDI playback nice to listen to. Not spectacular, but atmospheric enough.

One thing to be aware of with all of these cards with the exception of the SFX 3000 is that none of them have easy external volume control, so you'll have to keep altering the sound volumes through the internal mixer programs for each game you load. Also, get a decent pair of speakers (ignoring any you are given bundled with the system, especially the Orchid speakers) to show off the sound at its best and make sure they have a volume control on for ease of use. Cheap speakers are a false economy if you want to hear the full range that these cards have to offer.

In the end, then, the UltraMax packs just that little bit more life into its sound than the others in native mode, but cannot compete on the emulation side.

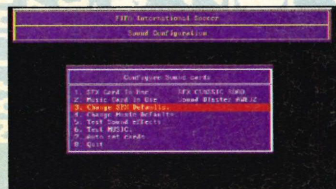
For General MIDI/Roland emulation you need look no further than the SFX 3000, which impressed everybody here. It is let down by the lesser emulations, though.

We had no complaints with the overall sound capabilities of the SoundWave 32 and the AWE32, but neither of them stood out in any particular area.

## As a games card

It's good to see that the UltraMax is finally getting something like widespread support. After the assorted Sound Blaster, Roland and General MIDI emulations it seems to be next on the 'must do' list for games programmers.

Sadly, that native mode is still far from perfect even when directly supported and using all the latest drivers. We experienced problems and crashes with Doom 1.4, various SSI games like Tanks! — sometimes surmountable but not without a good



It's in games setup that it can all go right, or horribly wrong, of course.

deal of tweaking. Similarly, the General MIDI option gave us regular interrupt hassles.

Even worse, the Sound Blaster emulation requires a program called SBOS to be running, and when it comes to compatibility SBOS is about as friendly as a French farmer on international market day.

It still insists that it will only use interrupt 7, and even though the Mega-Em mode switcher makes it easier swapping and configuring the emulations it is still far from perfect, and frankly we got far too many problems with games for comfort — across all the modes.

This temperamental hardware/software setup dogged the UltraSound, and it should have been sorted out in the UltraMax. Oh yes, Gravis haven't got rid of the obscure non-masked interrupt problem yet, either. Not impressed.

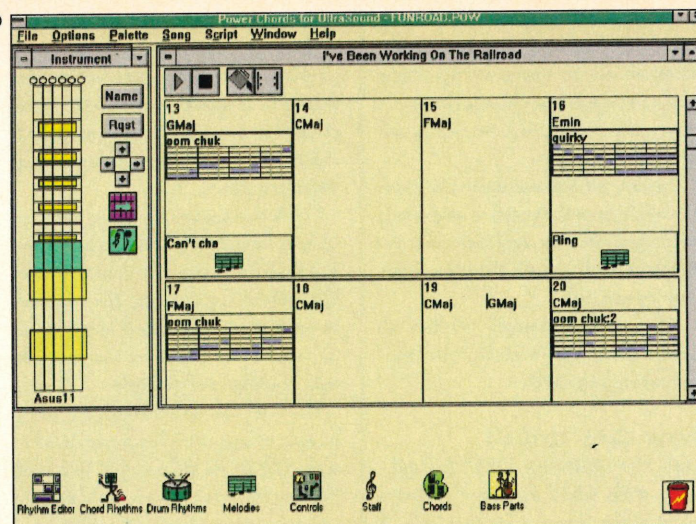
The Orchid, as we said, has no native mode, but in the available MIDI and Roland options we haven't been able to trip it up with a single piece of software on our test list. The Sound Blaster emulation relies on installing a little TSR, as with the Gravis, but although it is more reliable, it's still not perfect. It produced some appalling noises with the effects in Tie Fighter — and a complete absence of noise in the speech department — but that was the only major hiccup.

The Bluepoint card has no problems with getting a bog standard Sound Blaster emulation thanks to the cunning decision to put a Yamaha FM chip on-board (a trick matched by the AWE32). In this mode, we haven't had a single game fail to produce a fair approximation of Sound Blaster sound on cue.

In its native mode... ah, well, it's a new card and as we said earlier, it only has one game with drivers written for it — although Bluepoint are working on this. Other than that, the SFX 3000 offers General MIDI and three Roland modes and performance in these modes has been consistent.

There have been a few dicey moments with Roland music (Tie Fighter, again) and on the odd occasion we had to experiment a bit until we could find a music mode that would play ball. Overall, though, we managed to get everything working with minimal fiddling, and the complete lack of a TSR to clog up the base memory is a blessing.

Creative's AWE32 FM synth emulation is as solid as it could possibly be (again because it has the hardware on board, rather than trying to fake the mode with software). Unfortunately, the General MIDI, Roland GS and MT-32 emulations weren't so understanding and caused problems of one sort or



For guitar players everywhere, Power Chords is a nifty little sound editor that comes with the UltraMax.

another with several games. Some of these we managed to sort out with a minimum of hair-tearing, but the digital voices in Seawolf and Tie Fighter finally caused us to give up in disgust.

One extra point, the drivers for the AWE32 — especially when you bring in the reverb and chorus — take up over 40k, which caused us more than a few problems in trying to get enough memory for games when a CD-ROM drive was also loaded.

Overall, the Bluepoint and the Orchid cards gave us least in the way of problems. Basically we were getting a ninety per cent first time success rate as we loaded up game after game, which is impressive. These are cards that you can put in a PC and expect to get on with their job unsupervised.

The AWE32 and the Gravis were less well behaved, with the Gravis definitely the most troublesome of the bunch. It is certainly not the sort of card you can just lob into a PC and expect never to have to touch it again — it needs constant attention.

## Bundles of joy

When it comes to bundled software, both the AWE32 and UltraMax offer copious quantities of utilities of various quality. The other two manufacturers have opted for slightly less clutter but still have the core packages included.

Generic to all four is a Windows-based 'stack system' arrangement which contains a CD player for audio CDs through CD-ROM, a MIDI file player, a WAV file player, and a mixing panel for volume control and the such. Each also has a waveform editor, and all these are much of a muchness.

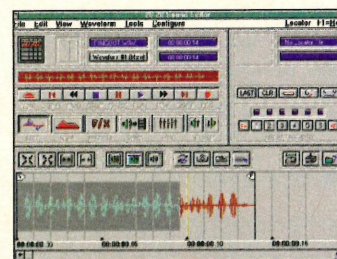
The Orchid only adds a small utility for including more sound effects for Windows events, and includes a talking calendar and clock. Not overly impressive.

In contrast, the AWE32 comes

with a microphone and voice recognition package, digital speech software, and QSound, a program that uses an algorithm to give the illusion of 180 degree surround sound to any effect you choose. Additionally bundled are several less than useful utilities and a positively dire mini game, which are best forgotten about.

On top of all this, Creative add two pieces of third party software. Cake-walk Apprentice is a sequencer that is easy to use but powerful at manipulating MIDI files. HSC Interactive SE is a Windows-based authoring system, an icon-driven programming language for producing multimedia applications. All in all, it's an impressive collection.

The UltraMax, where a range of



All the cards have at least a rudimentary wave editor. The UltraMax's is one of the best.

high quality Windows driven software comes thrown in, including Power Chords, a guitar-based music package (for people who don't like piano, presumably), Recording Session, an excellent beginners' MIDI sequencer (although not as powerful or as slick as Cakewalk), and Wave Lite, a cut down sound editor.

A few other whistles and bells are included on top, but by and large merely fill hard disk space.

At the bottom of the heap, the SFX 3000 offers very little in the way of add-in software.

Apart from the same Windows component system as the SoundWave 32, and a wave editor, it also comes with Midisoft's Recording Session like the UltraMax.







# THE BOTTOM LINE



## Creative AWE32

For a company that has developed a sound industry standard, the AWE32 is the expected step forward. There is no huge leap in technology away from the norm, just an improvement on the Sound Blaster 16 range of cards.

It may be evolutionary rather than revolutionary, but it can still hold its head up high in the company of the other three cards.

Native mode is good, particularly with reverb and chorus, but the MIDI mode is a little disappointing compared with the SFX and, perhaps, the Orchid. Sound Blaster compatibility is not a worry, unsurprisingly, but MIDI could be sticky.

Installation isn't a big problem either, and a good library of quality bundled software makes it feel better value. 40k of drivers, however, is a little excessive in anybody's book.

Overall the AWE32 is a solid card that doesn't fall flat on its sonic face at any stage, but doesn't stand out from the crowd as much as it should do given its pedigree and price.

Supplier: Creative Labs  
Contact (0743) 248590  
Price £200

### Rating out of five

Quality — native mode	4/5
— MIDI	3/5
— SB emulations	5/5
Games stability	3/5
Features	4/5
Software	5/5
Overall	4/5

### Verdict

Never a loser, but it never felt like value for money.



## Advanced Gravis UltraSound Max

We expected more from the Advanced Gravis UltraSound Max. For one thing, this was the chance to rid the card of some of the irritating compatibility faults of the original UltraSound. But, the UltraMax is still a temperamental card, and likely to balk at the most inconvenient moments.

On the plus side, games support has improved dramatically, the 3D sound capabilities are unique (if poorly supported) and the native mode sound is simply superb. The addition of the three CD-ROM inter-

faces is something that had to be done, of course, but it's still a plus point, as is the addition of 16-bit sampling and a good software bundle.

The biggest problem is the price. Whatever the RRP of £299 translates to as a street price, it's still going to be significantly more than the other cards on test here — all of which offer much the same in terms of features and quality. How can you justify a card at this price when — for example — you could get a 16-bit wavetable card and a double speed CD-ROM drive for less?

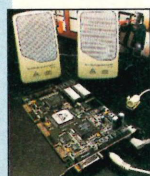
Supplier: Zye  
Contact (0293) 538666  
Price £295

### Rating out of five

Quality — native mode	5/5
— MIDI	3/5
— SB emulations	3/5
Games stability	1/5
Features	4/5
Software	4/5
Overall	2/5

### Verdict

Great sound on its day, support is improving. Price stinks.



## Orchid SoundWave 32

The SoundWave 32 is probably the weakest of the cards here in terms of overall sound quality. Not that the quality is necessarily poor (it is certainly far superior to your average 16-bit FM sound card) just that it doesn't have any kind of native mode to boast about, for a start, and it was outshone in all the emulations by one or other of the cards on test here.

Nevertheless it is an easy to install and extremely reliable card that won't give you nasty surprises when you come to load up the latest games — always a plus point, after all.

And although it isn't as easy to get excited about as the other, feature-filled cards it gets on with the job with the minimum of fuss and bother. In this respect it is an ideal games player's card.

As we have said before in PC Review, for what the SoundWave 32 has to offer, though, you may be better off going for the GameWave 32 (a stripped down version, minus the sampling facilities) which works out over £50 cheaper on the street.

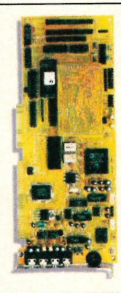
Supplier: Orchid Technology  
Contact (0256) 538666  
Price £169

### Rating out of five

Quality — native mode	n/a
— MIDI	4/5
— SB emulations	3/5
Games stability	5/5
Features	2/5
Software	2/5
Overall	3/5

### Verdict

Dull by comparison, but very reliable and a affordably priced.



## Bluepoint Sound FX Classic 3000

The Sound FX gets big gold stars for its combination of an phenomenally stable FM emulation with very consistent wavetable

games support and cracking MIDI sound quality. The consensus was that it was the best of the bunch on this score.

It also gets bonus points for the lack of software drivers to clutter up the base memory, the volume control, and the comprehensive set of features.

Still, it needs to have its native mode drivers accepted by software developers en masse before it can really shine.

And, for the time being the lack of a Sound Blaster Pro emulation means that the overall quality (if not the stability) is slightly let down in the effects department by the simple fact that an 8-bit mono Sound Blaster emulation is never going to sound too hot.

The biggest advantage of the SoundFX, though? The price, pure and simple. At £149 it undercuts its rivals considerably, while matching in the features stakes and still providing the more advanced PCM hardware wavetable synthesis.

Supplier: Bluepoint  
Contact (0908) 277007  
Price £149

### Rating out of five

Quality — native	n/a
— midi	5/5
— SB emulations	2/5
Games stability	5/5
Features	4/5
Software	2/5
Overall	5/5

### Verdict

Still needs some tweaks, but excellent value for money and our overall winner.

## SOUNDS OF THE FUTURE

So that's where it's at. Having looked over the last four pages at the various sound cards presently available to the PC user in the market, it would seem that this is the best that 1994 has to offer a games-player. Or maybe not.

Even as we speak, Orchid is looking to release the Wave-Booster up-grade, which offers hardware wavetabling for the SoundWave. It is also working on better MIDI capabilities for its current range of cards, and hopes to introduce a new cheaper 16-bit card that's fully upgradeable so that you don't have to throw away your old card if you fancy better sounds in the future.

All four manufacturers agree that wavetabling is the only way forward for the industry. As for other technical aspects of sound cards, Damon Le Geit at Bluepoint explained, "Take sampling rates. We're already at 48KHz, which is the limit of the human ear. We could go to 100KHz and your dog would appreciate it, but you don't need it."

Creative Labs also reckon that the way forward is better quality samples rather than advances in hardware. According to Creative, 32-bit sound cards are unlikely to come in the foreseeable future. 16-bit sound is CD quality, and that's all we need.

In fact, soon we're likely to see more multimedia kits appearing — sound and CD-ROM all in one — at cheaper and cheaper prices.

You'll also find that as the cost of the technology drops, when you next buy a new PC it will already have a 16-bit sound chip on-board. At least one of the major sound card companies is in negotiations with motherboard manufacturers on this score.

In the Brave New World of PC sound you can expect the features of professional hardware to leak over in to the games market.

Also, on-line services will offer a place to trade samples, so that you're never short on sounds. Creative's feedback forum on CompuServe is already shaping up that way.

It's a multimedia-for-the-masses thing.



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# CD SOFTWARE

## MORPHOLOGY 101

Morphing software

When Godley and Creme made their video for Cry (terrible song, even worse haircuts), they pioneered a technique called morphing — seamlessly blending faces into each other to make it look like one person was continually changing his appearance.

Now anybody can morph. All you need is a PC and the software — but does anybody really want to?

If the novelty of recreating last season's effects has yet to wear off, you'd be well advised to investigate Morphology 101 — a CD-ROM suite of morphing applications.

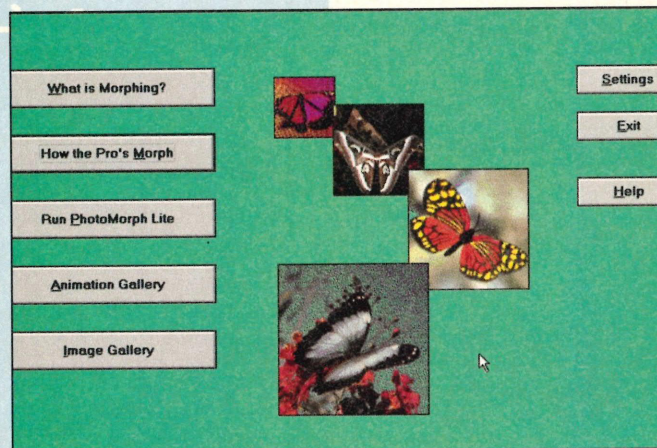
There's PhotoMorph Lite — a cut-down version of an award-winning Windows package which offers morphing and warping effects along with a preview window and a storyboard to chain clips together.

As well as that there's How The Pro's Morph, a 33-page interactive tutorial demonstrating professional techniques and over two dozen animations to "inspire" you.

The fun continues with Animation and Image Galleries which contains over 70 morphing effects and over 300 photographs of animals, food, objects, people, structures and the like. Then there's Matinee which lets you turn

■ **Supplier:** LTS Ltd  
 ■ **Contact** (0386) 792617  
 ■ **Price** £47

■ **Minimum requirements:** 386PC, Windows 3.1, 256 colour VGA card, 4Mb RAM, CD-ROM drive, and a Microsoft-compatible mouse.



video clips into screen savers and annoy your friends by morphing them randomly across their own monitors.

It's the sort of package which needs a CD-ROM, as you'd never get so many resources on 3.5" disks. The CD also contains the manual which helps cut down the cost of packaging.

It's an easy to use package with the emphasis on fun, and there's always the chance you may create something nobody has done before. It's certainly more fun than a Godley and Creme concert, and positively morphin' mungous.

David Bradwell

★★★★★

### The Animals!

Multimedia edutainment

Centred around the San Diego Zoo, and with a strong educational slant, this is something of a multimedia veteran. In its day, which was back in 1992, The Animals! was quite an advertisement for the capabilities of CD-ROM. Times have changed a bit since then.

The Animals! (what that spurious

exclamation mark is doing there I don't know) has several strands to it. You can simply look at the pictures of the animals themselves and hear them making noises, or you can go on a tour of the zoo, from each of its mini-habitats — or biomes, according to the program — to the Kid's Corner, Research Center and Library.

For each biome, which include grasslands, mountains, coastlines,

and tropical rainforest you get an audio soundtrack, written explanation and a series of photo stills of the wildlife of the region. Some also have accompanying videos, which are clear, but very short, and appear to be included more for technology's sake than to provide anything that the still photos don't.

The obvious 'pull' for this product is the photos of the animals themselves, so that everyone watching can go "aah" — all that serious text about biomes and terrain will be skimmed through in a trice — and while some are suitably close-up and appealing, too many pictures seem to have been taken from a long way away and with wobbly focus.

Christina Erskine

★★★



■ **Supplier:** Action Sixteen  
 ■ **Contact** (0276) 684959  
 ■ **Price** £16.99

■ **25MHz 386SX minimum, 1Mb RAM, VGA, CD-ROM drive with at least a 125K/sec transfer rate, and Microsoft compatible mouse required.**

### Oceans Below

SCUBA diving simulation

Oceans Below promises rather more than it delivers. Billed as a "multimedia diving experience that plunges you into a virtual SCUBA environment", what the program actually gives you are some sumptuous photographs of marine locations and a bit of educational narrative on fish and Scuba diving.

The two narrators, who look like Barbie and Ken, take you to still-photographed mock-ups of the ocean floor in the Caymans, Hawaii, the Red Sea, off Guadaloupe and four other exotic locations around the world.

Once there, you can zoom into pictures of various marine lifeforms and watch a small and very murky video of them swimming around, complete with a spoken commentary on their habitat. The pretence that you are diving too and witnessing all these undersea marvels yourself is never convincing, and while the program has some undoubted educational value, the entertainment side of things flags quickly.

Christina Erskine

★★★

■ **Supplier:** Action Sixteen  
 ■ **Contact** (0276) 684959  
 ■ **Price** £16.99

■ **33MHz 386DX minimum, 1Mb RAM, SVGA monitor, MPC (1) CD-ROM drive, and mouse required. Supports Sound Blaster and compatibles.**

### Americans in Space

Multimedia reference CD

If you've ever harboured thoughts of becoming an astronaut, or just have an interest in the workings of NASA, Americans In Space is for you.

The CD-ROM contains detailed descriptions of every manned American space mission with more than an hour of full motion video and over 500 narrated full-colour photographs.

Starting with early experimental rockets and the X-15 program up to current space shuttle missions (sort of like the difference between a Sinclair Spectrum and a Pentium), the program offers historical data and detailed information of projects, missions, and future space station plans.

Express Tours provide information about living in space, cruising the planet, disasters, and turning points in the American space programme. Mission Control lets you access space mission information by mission or date.



Available options appear on the main Mission Control screen. A green light appears on the telephone when commentary is available while clicking on the camcorder displays video clips. There's a photographs icon which launches a slide show and a zoom control which lets you close in on a picture.

It may not be a giant step for software, and there may be other CD-ROMs which all do a similar job, but if space flight's your bag, Americans In Space is quite literally out of this world.

David Bradwell  
☆☆☆☆

Supplier: Kam Co  
Contact: £58.60  
Price: (0895) 271919

Minimum requirements: 25MHz 386PC, Windows 3.1, an SVGA display, 4Mb RAM, a CD-ROM drive, and a Microsoft-compatible mouse.

## SOFTWARE

### House Plant World Garden design/reference

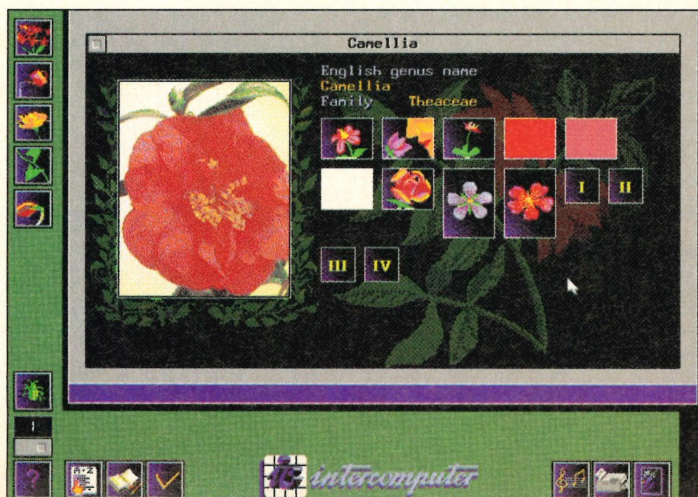
Such is the proliferation of inherited, abandoned and adopted house plants in my flat that I pounced on House Plant World as a means of identifying what they all were once and for all. Unfortunately, though there is a wealth of information contained in this program, it's not really set up to do this.

By clicking on the name of your plant (in English or Latin) in the catalogue section, you can see a colour illustration of the plant and access information regarding feeding, watering and the preferred temperature and humidity for the plant. The separate leaf and flower menus give more specific information on these, but while the flower data is

often separately illustrated with a close-up, the pictures for leaves are mainly symbolic.

There's also a section on plant diseases which aims to identify and suggest preventions and cures for common plant ailments.

All this can be backed up by House Plant World's 'diary'. Here you can paste information 'cut' from the catalogue, and put together a plant watering calendar to help you keep track of when to water each plant next (when the soil starts looking dry, I would have thought).



## THE LEAN BODY GUIDE



### Personal fitness guide

If you're trying to lose weight or tone up, the Lean Body Guide might sound ideal. This all-encompassing fitness package includes information on exercise, clothing and equipment, diet and training injuries — pretty much everything you need to know on.

You can also design your own fitness program and record your measurements, blood pressure and weight.

The exercises are demonstrated via video footage of an alarmingly supple girl in a pink leotard. The program covers floor exercises, step and dynaband, and there are also warm up and cool down sections.

It's a nice idea, but unfortunately there are too many flaws to make it worth buying. The presentation is dull, the music is banal and the interface is clumsy, making it difficult to find your way around. Worst of all, many of the exercises are downright dangerous. The program includes such infamous nasties as waist circles, head rolls, lying leg

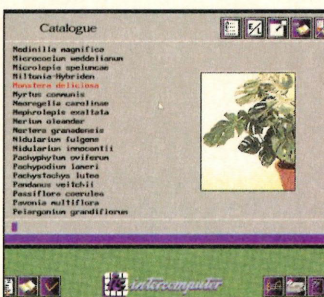
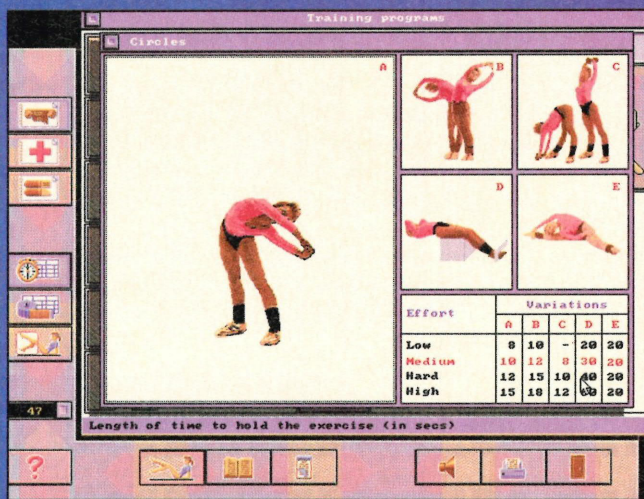
Supplier: Software Partners  
Contact: (0954) 206626  
Price: £29.99

Minimum system requirements are hardly excessive: a 286PC, with VGA, MS-DOS 3.3, mouse and 7Mb of hard disk space are all you need.

raises and bouncing toe touches (to name but a few), all of which can have a very unhealthy effect on your spine. Such "controversial" exercises should be accompanied by a warning if they are included at all — and quite frankly, I think they should be completely left out altogether.

The blurb on the box says that, with this program, "you'll lose weight — but you'll keep your health." I beg to differ — you may lose weight but what's the good of a trim figure if you've got your neck in a brace?

Cal Jones



Finally, you can search through House Plant World with a set of selection criteria to choose the best plant to buy for the conditions you can offer it.

House Plant World has a lot of attractive features. The pictures are mostly clear (in 256 colour VGA), and while I frankly think that the diary and calendar are largely superfluous, the plant selection section offers something which an

equivalent book couldn't do nearly so neatly.

Maybe there's something fundamentally wrong with me, but I still can't imagine rushing over to the PC and loading up House Plant World every time one of my leaves looks a bit droopy.

Christina Erskine  
☆☆☆☆

### MediaBlitz! Multimedia system software

MediaBlitz! 3.0 is an easy to use utility which brings multimedia to existing Windows applications. Sound, graphics, video and animation can be combined to make a complete multimedia presentation.

The program comes on floppy disks, but for best results you need a CD-ROM drive. As well as the program files, the CD-ROM features over 100Mb of so-called "clip media" on CD (video, bitmap, audio, and animation files). Using these as a resource you can make your own multimedia screen savers and play them back — or even give them away to demonstrate your artistry.

Four sets of sample screen savers are included (The Planets, Orca

Supplier: Software Partners  
Contact: (0954) 206626  
Price: £29.99

286 PC minimum, plus VGA graphics, 4Mb disk space and a mouse. Runs under DOS on a 386 upwards — probably pretty slow on a 286.



# ASTOUND

## Presentation software

**D**o you really need a presentation package? The business software world wants you to believe it. That's due to a number of factors, not least of which is Microsoft with its marketing muscle. When it bundled PowerPoint with MS-Office it introduced a whole class of people to a whole set of marketing ideas — one of which was the graphic presentation.

The best known presentation package until then was SP's venerable Harvard Graphics. Did ordinary, regular sort of people need this package? Not when it cost nearly £500. Things, however, have changed, and now both Harvard Graphics and PowerPoint are cheap.

Enter a third contender for the title of black belt in creating startling on-screen presentations. Unlikely as it is, GoldDisk's Astound started life on the Amiga and so entered the PC world with a distinct advantage. It already incorporated sound and vision — multimedia to you and me — so the learning curve was far shorter.

Let's — very briefly — look at the features. The software includes animated actors which will turn your graphs into living things, animated not only for vision but for sound. It has an outliner so you can set up your stall before you turn the words into pictures. It will embed not only wave files and MIDI files but will also incorporate video clips, if you think that's good in a presentation.

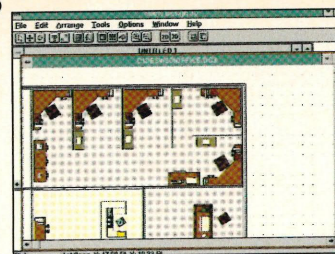
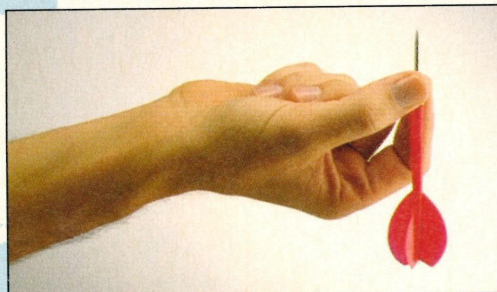
If you have a microphone, you can even add your own dulcet tones. You don't need to commit yourself to a final form because Astound will let you preview most things before you add them to a particular slide.

Astound is, pound for pound, the best graphics presentation package for the PC. That's a bold claim but it's easily backed up. First of all, it's considerably faster than the opposition. It includes Macintosh-like features unmatched by PowerPoint, never mind Harvard Graphics (for Windows or DOS) and lastly, but not leastly, it delivers what the others only promise.

If you're the sort of person who feels that you could present your case better by giving a PC presentation, Astound makes it easier than most. The templates you find in the rather top-heavy PowerPoint are light as a sponge cake with Astound. While software developers at Software Publishing wistfully contemplate adding multimedia bits and pieces, Astound comes ready with them.

For £99 you will find functionality way beyond the PC opposition. That's software maturity for you. The original Commodore developers got to grips with the concept on sound and vision about four years before the PC was capable of it. Now that the PC has got its act together, and effectively overtaken all its rivals in the multimedia stakes, it has also got — in Astound — the software to make the most of those capabilities.

This program is seriously impressive. If you want the best way to present your ideas to other people on a computer screen, Astound fits the bill exactly.



are a bit limited. This isn't too surprising, perhaps, and an option enabling you to design your own, would mean the program would need to be able to render in 3D your own 2D designs, which would take it out of the realms of a Home Design programs and into the CAD field. However, it should be easier to resize the custom items. Again, using the kitchen as an example, the program supplies sample kitchen units, but it doesn't tell you how wide, deep or tall they are: you just have to guess by the amount of space they take up on the grid.

You should also abandon any notion of trying to make your designs true to colour (this is not a decorating program!). Sure, you can change the colours of walls and items, and define your own custom colours using the standard Windows colour palette — and it's an inexact science.

But my major gripe is that everything is just too slow. Once you've drawn a room and put a couple of pieces of furniture down, the screen will redraw, and redraw again every time you select an item. It's jerky and hiccups to operate in 2D, and once you try to render anything, even in "quick" wire frame format, the machine is held up for ages. We did the main testing on a 4Mb 486SX, which is not the fastest machine in the world and it has no co-processor — a co-processor would undoubtedly speed things up a treat, but as far as I can see, there's no support — but the box states that the minimum requirement is a 386SX with 2Mb RAM. I tell you, you would have to be insane to attempt this on a 386SX.

What all this means is that 3D Home Design is fine if you just want to play around with approximations — a sort of PC doll's house, if you like. But if you have a real practical application, it's unwieldy, difficult, and slow.

Christina Erskine  
★★

■ **Supplier:** Gold Disk  
■ **Contact** (0753) 832383  
■ **Price** £99.00  
■ **Minimum requirements:** 386PC, Windows 3.1, SVGA display, mouse and 4Mb RAM. 8Mb of RAM recommended.

John Bennett  
★★★★

Whales, Sci-fi Movies and Ocean Habitats) and each of these includes multiple screen shows. None are particularly inspired but they serve as an introduction to what's on offer.

MediaBlitz! consists of three applications: ClipMaker, ScoreMaker and ScorePlayer.

ClipMaker lets you to select specific portions of media files and create "clips" which can be added to a multimedia presentation, called a "score". With ScoreMaker you combine and synchronise graphic images, video, and animation with music and voice-overs to create a score. Finally, ScorePlayer lets you

combine scores, media files and clips into a "show", embed your show into another application, or use it as a Windows screensaver.

It might seem like a lot of effort, but the program is reasonably easy to learn. However, to be really innovative you'll need a constant supply of fresh media clips, and these are not always easy to come by.

David Bradwell  
★★★★

## Expert 3D Home Design

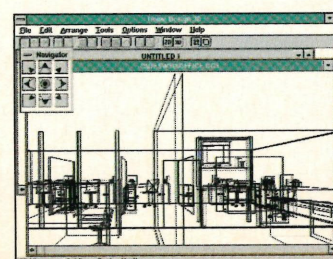
Home design

**L**ike Floorplan Plus (reviewed in Issue 31), 3D Home Design runs in Windows. You draw the walls for your house, storey, or just a single room, add the doors and windows from a custom set provided by the program, and set down down furniture. Once you think you might have the right look, select 3D mode and the program reproduces your design in 3D. Ideally, you should now have an accurate representa-

tion of the way your living room, office, kitchen, etc, will look. In practice, there are many pitfalls along the way.

The first is the difficulty in getting the dimensions exact. You can draw your walls over a dotted grid, but if you're trying to relate your design to, say, a new fitted kitchen, you will spend a disproportionate amount of time getting the measurements exact. Since your design for a new kitchen could be useless in real life if you're so much as an inch out, this is the first thing that should have been made really easy.

Secondly, the custom furniture and items supplied by the program



■ **Supplier:** Asymetrix  
■ **Contact** (0800) 716957  
■ **Price** £89.00

■ **Minimum requirements:** 386PC, Windows 3.1, SVGA display, 4Mb RAM, CD-ROM drive.

■ **Supplier:** Software Partners  
■ **Contact** (0480) 497622  
■ **Price** £29

■ **386DX PC with Windows 3.1 and 2Mb RAM — a 486 is recommended, as 1sd 8Mb RAM. The files take up around 2Mb on the hard disk.**



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# EDUCATIONAL SOFTWARE

## ROCK AND BACH STUDIO

### Music Education Software

There are more and more pieces of software out there that claim to teach us about music. They offer everything from basic chords on guitars and keyboard technique to advanced sound manipulation in MIDI.

Very few, though, take the point of view of the whole band or orchestra, and explain in simple terms how they work together to form music in the many varied styles that exist.

With Rock and Bach Studio, Broderbund (the developer) has taken Edison, the side-kick character from this series of products, and put him in a recording studio. There he offers to introduce children to members of various bands, a variety of instruments, and some fun video-making methods. It's all hands-on stuff. If you want to know how a blues guitarist, rock drummer and country and western support would sound cutting a rave version of She'll Be Coming Round The Mountain, then that's fine with Edison and the studio crew.

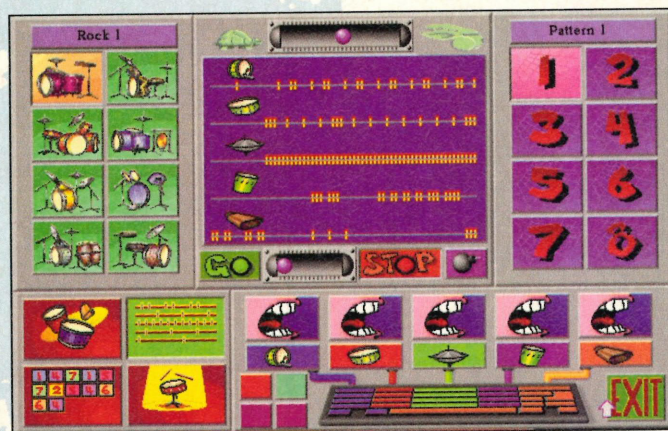
When fed up with the screeching of all those electric guitars and over-abused electro drum kits, there are always the music library and instrument room to take a breather and get acquainted with some classical composers. Then it's back to setting up a full video of your favourite grooves.

The balance is really pretty good, and not just in the range of music. The level of learning for actually useful musical topics like harmony and keys is relatively high, and presented in a very unobtrusive manner.

I was left shuddering by one thing, though. The quality of sound is truly pitiful considering that this is supposed to be a musical package. If I ask to hear a sample of tuba music, I would actually like it to sound like a real

■ **Supplier:** Children's Computing  
■ **Contact:** (0869) 324324  
■ **Price:** £34.99

■ **Minimum 386 PC with 2MB of RAM, 5MB of hard disk space, a mouse and Sound Blaster card. Supports VGA or SVGA graphics.**



instrument, not the generic mix of electronic bleeps and hoots that used to simulate instruments on very early Casio keyboards. Any child exposed to a live orchestra or band after Rock and Bach Studio is likely to be very confused indeed. It's difficult to put music quality concerns aside when it's music education software we're dealing with, after all

That aside, this is a fun and entertaining program that will appeal to a reasonably broad age range.

Martin Klimes  
★★★★

### Wild Science

#### Education software

In an age of scientific wonder, where you'd be forgiven for thinking that our lives were unliveable without technological gadgets, it wouldn't pay for your children to be techno-phobic. This is the line that Broderbund are treading with WSA.

The message is that science is fun, and if you want your children to be literate in the basics of friction, gravity and electro-magnetism then introduce them to the professor's lab. Inside is a machine that reminded me of an old marble madness coin-op, where you can experiment with the effects of different physical phenomena.

The game element is simple. Move balls around, through mouse holes to various rooms, while the pro-

fessor explains the scientific principles behind what you're doing. As is the case with each of the Broderbund products in this line, a little cartoon character called Edison is there to help out and add a bit of personality to the whole affair.

Over-all I ended up feeling that, as valiant an effort as WSA is to teach some of science's basic secrets to younger children, there was a lot more that could have been added. Surely friction, gravity and magnetism aren't the only principles that



could have been included.

What about mass and density being covered on water worlds? Surely there's a game or two and hours of fun in some of those old primary school experiments with magnifying glasses and prisms.

It's just that WSA doesn't last very long, that's all. Or are Broderbund saving up their ideas for WSA 2?

Martin Klimes  
★★★★

■ **Supplier:** Children's Computing  
■ **Contact:** (0869) 324324  
■ **Price:** £34.99

■ **Any 386 PC with 2MB of RAM and a Sound Blaster will run Wild Science. You also need a mouse, 5Mb of disk space and VGA or SVGA graphics.**

### Mystery at the Museums

#### Children's puzzle game

What a curious package. Even when looking at the box I was left wondering just what the designers were trying to do with MatM. Is it educational software? If so, then all I can see it teaching is a few facts of largely historical irrelevance to most children, plus a helping of problem solving and logic skills.

Perhaps it's not got any such grandiose scheme in mind, and is meant as a game pure and simple. However, if that's the case then this collection of puzzles ripped off from day-time TV game shows may have wildly missed the mark.

It isn't cute enough or have nearly enough atmosphere to enthrall the younger aged children out there, and not fast-paced or bright and lively enough for older children in the 1990s.

Using Edison, the same side-kick as stars in other Broderbund products in the series, the aim is to travel to various buildings of the Smithsonian Institution and hunt for lost artefacts and relics by solving a series of basic logic and perception puzzles within a given time limit.

Even with a range of difficulty levels and locations, I was left wondering whether MatM would keep even the most patient and curious of children happy for long. I doubt it.

John Bennett  
★★

■ **Supplier:** Children's Computing  
■ **Contact:** (0869) 324324  
■ **Price:** £34.99

■ **Mystery runs in VGA or SVGA with Sound Blaster compatible sound. It is mouse controlled, and needs 4Mb of disk space and a 386 PC.**



# HARDWARE

**Axys**  
Analog Joystick

In a market full of joysticks of every conceivable shape and size it's difficult to see how a new stick could possibly stand out from the crowd. The latest from Suncom comes with a removable wrist support that means you can use it either palm-held or table top, which leaves your second hand free without tiring your wrist.

It's an interesting idea, and the short shaft allows you to get precision control one handed for flight sims and strategy games where you move a cursor around. By resting your hand on the wrist pad you stop the joystick tipping over when you move to the right or left, and you have a free hand to use any keyboard commands you'll need.

As nice as the concept is, though, in practice there are a couple of points that act as a distinct fly in Suncom's joystick ointment.

For starters, the button on top of the stick is less than easy to hit cleanly. Not good for machine-guns and other occasions when you need to pump furiously on the controls. And worse than this the secondary button is in a position that makes it almost impossible to activate at all without eye-watering wrist gymnastics. Without the support and used two-handed the buttons are fine, but then the Axys is just another uninspiring analog joystick.

Furthermore, it's a stick for a limited audience. Even for flight-sims I found a total lack of atmosphere from using a one inch fingertip controller instead of a full palm stick, and the feel a joystick gives you in a game is pretty damn important in my book.

Nice idea, shame about the end product.

*Martin Klimes*  
★ ★



- **Supplier:** Suncom
- **Contact:** (0285) 642211
- **Price:** £24.99

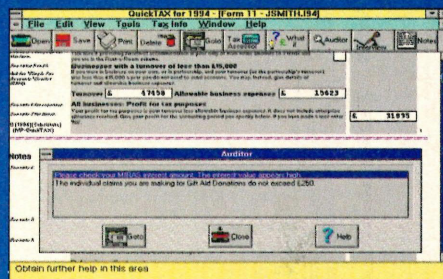
■ Plug it into a joystick port on your dedicated games card or sound card if it has one. No other installation is needed.

## PC REVIEW

## TRIED & TESTED

Some software gets deleted from the hard disk the minute a review is written — some hardware we wish we'd never laid eyes on. But there are products we see every month which we wish we could keep.

It is these programs, devices and systems — those which we've worked with and found enjoyable, reliable and, above all, genuinely useful above and beyond the call of duty, that rate an appearance on this page. Any of the products which feature here we recommend as worthy of inclusion on anyone's shortlist.



### QuickTAX

Intuit, £49.95

Save-you-money-software in the truest sense — cheaper than an accountant.



### AST Advantage! 486SX/33

AST £1,499  
Comprehensive multimedia specification and software bundle for the price, and thoroughly well designed inside and out.



### PC PaintBrush Plus

Softkey, £29.99  
Not only wins the best packaging of the year award, but also provides the easiest, most fun route in to painting on the PC.



### GenSys Blue Lightning Performance PC

GenSys, £1,149  
A powerful combination of clock-tripled performance and 486SX pricing.



### CD2 Bluepoint, £99.99

Unique first IDE CD-ROM drive combines hassle-free use — no card, no IRQs — with a rock bottom price.

Recommended so far: Gateway 2000 486/33SX, Fauve Matisse, Microsoft Art Gallery, Microsoft Fine Artist, Media Vision Double Fusion LX, Orchid GameWave, Bluepoint Sound FX Classic 3000, Micrograph Tabby, Dan Vantage Multimedia PC, KidDesk, NEC 3Xi CD, WordPerfect InfoCentral, Mitsumi FX001D



# Shareware reviews

This month Alan Clark takes a look at a range of compilation CDs that make up the Heaven series from Most Significant Bits. Whether you are looking for fonts, clipart or even cooking recipes and dieting tips, there's something in this series for everyone.

## Adventures in Heaven 2

With the quality of shareware games always improving, a CD-ROM full of them is a dream come true. This games CD is split into two main categories: games for DOS and games for Windows. Within each section are further categories relating to the type of game: arcade, adventure, strategy, card and board games, including a selection of the best titles from Apogee.

Normally with compilation CDs all the software is provided in Zip files which then have to be copied and unarchived onto your hard drive. But with this, and the other disks in the series, everything is supplied in ready to run form; nothing has to be copied or installed to your computer. A file menu/launcher is provided for both DOS and Windows and it's one of the easiest, friendliest and most colourful front-ends I've come across. If you're a games freak, there's bound to be something on this disk for you.

Available from Unica  
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**Halloween Harry.** Just one of the great Apogee games available on Adventures in Heaven 2.

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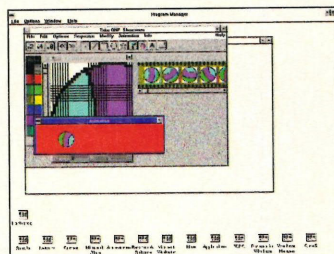


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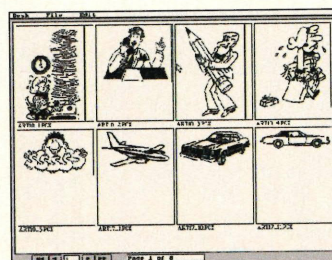
Sorted into various categories, this CD covers such topics as animals, sports, cartoons, comics, education, the list is quite impressive.

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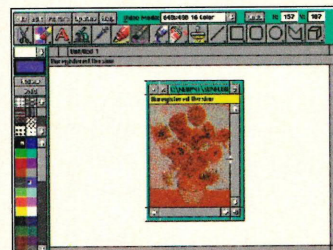


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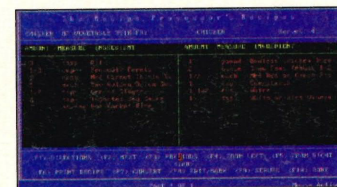


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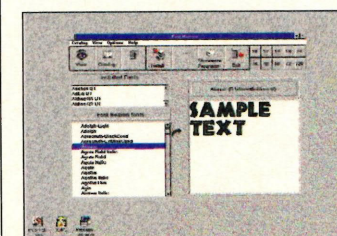
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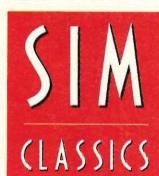
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# MATCH



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# Graphics workshop

Drawing packages are ideal for creating technical drawings, logos and a whole host of other things where accuracy and shape manipulation are a priority. Alan Clark takes you through an affordable professional drawing package, CorelDraw 3, and explains some of the principles and terminology involved.

For those new to graphics packages, it can often come as a surprise to find that within the wide spectrum of graphics programs available and there can be found two distinct types of program — the drawing package and the paint package.

## Spot the difference

Drawing packages (which are often also known as vector-based packages, because each shape you draw is stored as a series of points, or vectors) store the shapes in a drawing package via a series of vector points, which means you can pick them up, move them around the page, scale, rotate or skew them and generally manipulate and change them.

Drawing packages such as Designer or CorelDraw offer the user a high degree of accuracy and are therefore ideal for technical plans and drawings. A wide range of tools are also on offer to the user for creating and editing shapes and lines. Unfortunately, because of their high level of sophistication and power, this type of software is usually expensive and more the domain of the corporate artist/designer.

Painting packages, on the other hand, such as Paintbrush or Deluxe Paint II Enhanced, treat the images you draw as just a collection of coloured pixels. A range of simple tools are available for drawing basic shapes, but once drawn these are treated as any other pixel. Unlike drawing packages, but with one or two exceptions (namely Fractal Design Painter and Fauve Matisse), painting programs don't offer the user the same amount of accuracy or sophistication and are therefore easier to use and generally cheaper.

On the whole then, whilst drawing packages are generally far more sophisticated than painting pack-

ages, they are often also far more expensive. For the home user, a price tag of £500 for a drawing package can often be off-putting.

But there is a way around this — an earlier version of the drawing software you may be interested in. It may not have all the features that the latest version contains, but then neither will you need to complete a degree course in order to use it, and it certainly won't cost you more than £200 either. Version 3 of CorelDraw is a prime example.

## CorelDraw Version 3

When it was released in 1992 CorelDraw 3 was one of the most powerful and sophisticated art and design packages on the market. Since then we've seen two further upgrades. The RRP for Version 3 is now just £149, but by shopping around you can buy it a lot cheaper. Therefore it's an ideal purchase for the home user. Why? Simply put, because there really isn't much else available in this price bracket that offers quite the same range of tools, functions and sophistication for the user.

## In detail

CorelDraw 3 offers the user two ways to draw lines and curves: Freehand and Bezier. When in Freehand mode you draw your shapes by holding down the mouse button and moving the cursor around the screen, pretty much the same as using a pencil.

CorelDraw then inserts nodes at various places within your shapes. These nodes are then used to edit and reshape your objects.

Because it's difficult to accurately control a mouse when drawing in this manner, and your lines and curves may look a little bumpy and rough. That is where the Bezier mode comes in handy. The easiest

way to describe this mode is as a Connect-the-dots drawing mode; you click the mouse button to select the start of the line or curve and then click at the finish point. CorelDraw then connects the two nodes together. Since you now control the placement of the nodes, it is a lot easier to create smooth flowing curves and lines.

## On the ellipse

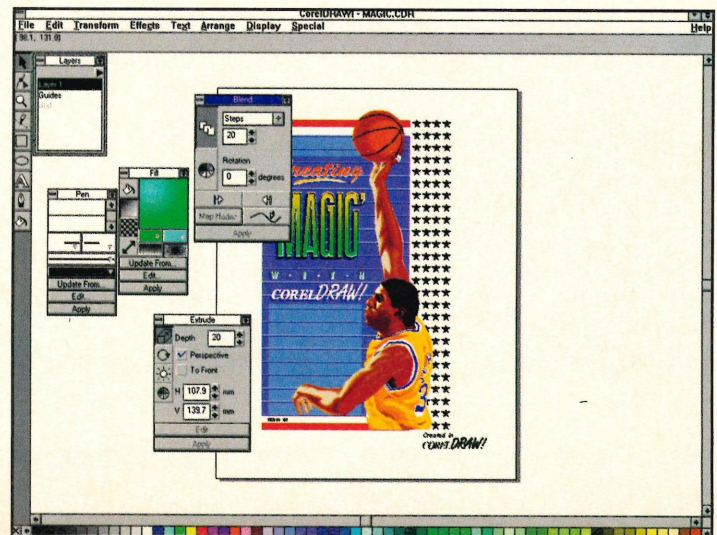
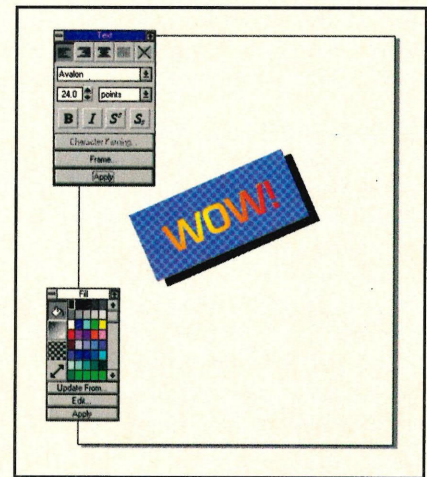
As well as lines and curves CorelDraw also offers tools for the creation of rectangles and squares, ellipses, circles and arcs. By using the

Right: Here is a simple example of how the layers can be arranged; the text was created first, and then the two rectangles were drawn, filled and placed beneath.

Below: Roll Ups are used to edit the various options of each tool. As the name implies these can be rolled up to conserve deskpace.

pointer you can then go through your design and select an object you wish to edit further. Two modes are available when selecting an object; the default (standard) mode allows you to stretch and scale it, whilst selecting the object again brings up further controls that allow you to rotate and skew it.

For multiple objects you can use the Shift key and drag a box around the desired objects. In situations





where selecting specific objects can be a little difficult, ie when two shapes are superimposed together, you can use the Tab key to move between the various objects until the correct one is selected.

With each object being stored separately it can be a big hassle when it comes to moving the whole design, for example, a logo. In this case what you can do is group two or more objects together that are then treated as just one. When these grouped objects are then selected the various editing options apply to the whole thing making it a great deal easier to rotate or move.

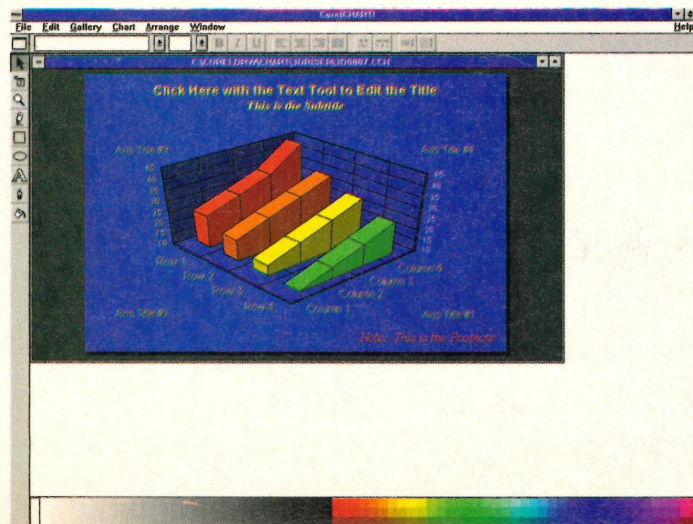
But a selection of lines and shapes isn't really very inspiring, is it? That is where the fill tool comes into play. The fill tool within CorelDraw offers you a good range of fill options; this can be a single solid colour fill, you can create two-colour pattern fills, full colour pattern fills and even fountain fills.

A fountain fill is CorelDraw's implementation of a gradient fill; that is you start at one colour or shade and gradually change to another. Two further options are available to control the direction of fill; radial or linear. When using the radial fill, for example to create a coloured sphere, you can adjust the position of the centre of the fill allowing you to create realistic highlights and give the selected object a more 3D look. A variety of other options allow you to further define the style and angle of the fill.

### It's all in the outline

For creating outlines for the various objects, CorelDraw provides a wide range of options. As default when objects are drawn, they are surrounded by a simple black outline. The various options allow you to adjust the width of the outline, the line style, ie dotted, dashed, etc,

**CorelChart is another application provided with CorelDraw for the quick and easy creation of graphs and charts.**



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and outline colour as well as the very creative Calligraphic Outline option.

This last option allows you to define the shape and orientation of the outline pen. Depending on the various options you set, this will create a series of thick and thin outlines providing a very creative effect.

### Pick 'n' mix

Whilst the Pick tool allows you to rotate, move, scale, etc., your objects without changing their basic shape, there will be times when you'll want to alter them more drastically. CorelDraw offers the user a tool that allows them to adjust the placement of the individual nodes within the shape to create, for example, squares with rounded corners, or create pie wedges from ellipses. Curves and lines can also be altered using this tool, in which case you move, add and delete the various control points that define the curve or line.

### Special FX

Further editing options are available from the special effects menu. Here you can blend two shapes together for creating realistic highlights, add perspective and extrude objects. By adding perspective you can give your objects a sense of depth; one-point perspective makes the object recede in one direction whilst two-point recedes the object in two directions. By extruding an object you can further enhance the illusion of depth.

### All enveloping

Envelopes are another way to alter the shape of your objects. Four envelope modes are available; the first three modes are typically used to change the shape of one side of the object. For more dramatic results



the fourth mode can be used, for example, when you need to fit text within irregular shapes.

Once your various objects have been created and edited CorelDraw offers you a variety of commands — to front, to back, forward one, back one, and reverse order — allowing you to arrange the various objects. When an object is created CorelDraw automatically places it on top of all other objects within that layer. Therefore these commands are useful when you want to place certain objects behind others.

As well as these, and a host of other drawing tools and options CorelDraw also provides a range of text functions. Once the text placement tool is selected the desired text is entered directly from the keyboard. A whole variety of options including font (support is provided for True Type and Adobe Type 1 fonts), size, justification, and text spacing allow you to control exactly how the text will look.

### On the right path

For more creative results you can fit text to a path. This can be a straight line, a curve, a rectangle, ellipse or even another text string. Here there are further options to control just how the text will orientate along the path. Kerning allows you to further edit your text by letting you move and rotate the individual letters as opposed to the whole sentence or paragraph.

If you still can't create the desired results, try converting the text to curves. This command creates nodes at the various control points that you can edit as you would a standard object allowing you to create even more possibilities. The down side to all this though is that once converted to lines you can no longer apply any other text-related commands.

### Colour me bad

Accompanying such a wide range of drawing, editing and text tools are equally powerful colour palette options. When assigning colours to the various objects CorelDraw provides two colour specification methods: Process colour for creating your own colours and spot colour using Pantone colours.

Spot colour is generally used when working with less than five colours. With spot colour you are choosing from specific colours based on the Pantone Matching System. Since this is the most widely used colour system within the printing industry this method is handy when the work you are doing is to be sent to a professional printer; the printed colours will be the exact colours you've chosen on screen. If you're working with more colours, the Process method gives you the ability to mix any colour you need from a selection of literally millions.

Considering this software is two years old it still offers a wide range of powerful features and tools that the home user should soon find themselves at ease with. Whilst all the various editing functions and options may seem overwhelming to start with, once you begin using the software you'll soon find how easy it is to create great looking logos, designs and drawings. The well written manual guides you through each section clearly with plenty of examples.

• CorelDraw v3. RRP £149. For details contact Ingram Micros (dealer) on (081) 905 6969.





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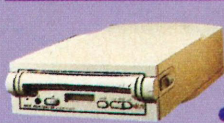
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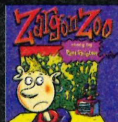
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# Help!

## Don't Panic —

check the PC Review technical reference guide (then panic)



### DISK COMPRESSION

**D**isk compression seems to work like magic: you run the set-up program and, *voilà*, your hard disk is twice as big as it was before! Of course, there is no such thing as a free lunch and you pay for the increased capacity in a number of ways. Your disk will be slower, it will be more sensitive to errors and some software may not work with it at all.

Disk compression works by recoding your data so that it takes up less space. The recoding simply replaces repeating sets of recurring data by shorter symbols. For example, this printed explanation would be a bit shorter if we agree to code "disk compression" as "DC". The recoding is done by your

machine's processor as the data is read from or written to the disk.

If your machine is a comparative slouch — a 386SX or DX — then you will probably notice the time it takes to compress and decompress the data. This seems unfair, as it is the lower powered machine that is usually coupled with a smaller hard disk and so needs compression most.

Most users can decide if the prospect of the loss of speed makes it worth trying disk compression as a way of avoiding buying a new hard disk drive. What is more difficult is the threat that the drive may be in some way less stable.

The most obvious reason why a compressed disk may be less secure is that more data is packed into the same space.

If a disk error occurs that wipes out a section of the disk, then you will lose roughly twice the amount of data that you would have lost on the uncompressed drive.

This obviously sounds serious, but in practice it isn't really much worse. Most files are so organised that if you lose even the tiniest fragment of the file's data it will refuse to load.

### Software errors

A compressed drive isn't any more likely to suffer a hardware failure than a non-compressed drive. However the way that the files are stored on the disk does seem to make it more sensitive to software errors. For example, if you have files open when your machine crashes, for whatever reason, then sometimes those files will be lost.

Similarly, software failures that result in irritating but not serious, disk problems such as cross-linked files, lost clusters and so on, can become very serious when they occur on a compressed drive and you carry on without correcting them. For this reason it is essential to run Chkdsk or, better, Scandisk (which comes with MS-DOS 6.2) and correct any problems that are found, before you settle down to use your machine. If you start the day with a problem-free disk it is unlikely to develop any serious fault by the end of the day.

A compressed disk also makes your machine look slightly more complicated. The reason is that as well as the compressed disk there is an uncompressed 'host' drive added to your set-up. Having two drives when you started out with one is a complication, as is the matter of the

If you are new to PCs, or just plain bewildered by talk of boot disks, device drivers and upper memory blocks, then these pages have been designed with you in mind.

In this month's Technical Help section, we cover some of the parameters you can use with the DIR command for easy file viewing, and some useful advice on buying a PC and what to look for.

There's also a glossary of PC jargon, which should help to explain terms not only in these pages, but those which you may come across in hardware and program manuals.



compression drivers which have to be loaded when your machine starts up to do the compression/decompression tasking.

The problems start if you try to reconfigure your machine manually — you have to leave the drivers where they are. If you delete them on purpose or by accident, then the whole of the compressed drive apparently vanishes to be replaced by an oddly named file. Whatever you do, don't delete the odd file — it's the compressed disk's data. Simply reinstall the compression software using an option that tells it that there is already a compressed



## USEFUL PRODUCTS

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Symantec  
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Disk housekeeping, file and disk repair.

### PC Tools v8

£139  
Central Point Software  
(081) 848 1414  
Disk housekeeping, file and disk repair.

### QEMM 386

£80  
Quarterdeck  
(0245) 496699  
Memory manager for increasing conventional memory.

disk in existence. As long as you don't try playing about with your machine's configuration this sort of problem is unlikely to happen — but the fact that it can is another reason why compression is less secure.

### Out of space?

The final disadvantage is that some programs simply refuse to work or work unreliably from a compressed drive. Sometimes the problem is to do with running out of disk space. The amount of disk space shown on a compressed disk is just an estimate

of how much you can store given that the compression manages to achieve a given compression ratio. If it doesn't achieve this estimated compression ratio then you can appear to have run out of space even though the file should have fitted into the available space.

Some software simply cannot cope with this aspect of compression and instead of telling you that the drive is full, it crashes. Other software does strange things to the disk, usually by-passing the compression, and also crashes. There really is no reason why this is necessary. It's all a matter of bad program design, but then we all know a few games and other programs that would qualify for that title!

If you need to run a program that doesn't work from a compressed drive, then the solution is to make sure that the uncompressed (host) drive has enough space on it to install and run it. This often means running a utility to alter the amount of compressed and uncompressed space available — and this is yet another complication of using compression at all.

So finally, is it worth it? Not if you can afford a new multi-megabyte drive, but in the real world compression makes it possible to carry on having fun with a system that is past its use-by date.

### VIRUSES: HOW TO KILL AND CURE

Without wishing to sound blasé on the subject, viruses are not nearly as common as people think they are. With reasonable care, you should go through life without ever acquiring a computer virus, although a lot of machine errors do superficially look like viruses to the uninitiated.

A virus is simply a program which will copy itself from one disk to another (from a floppy to your hard disk, for example) without your consent. Most commonly, it has been designed to alter the contents of other files, with mischievous or even malicious intent.

There are two main types of virus: firstly, there are those which copy themselves to your PC's bootstrap loader, a small program in the space on your hard disk called the boot sector. The bootstrap is the program which calls up your operating system

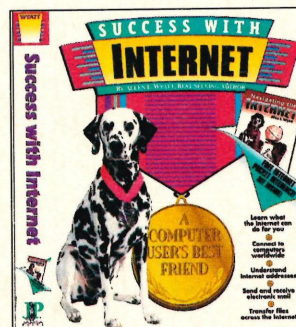


## BOOK REVIEWS

**Confused by words like FAQ, ftp, WAIS, WWW and telnet? Dean Evans reviews five books that attempt to unravel the mysteries of the Internet.**

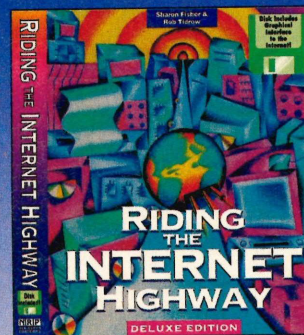
If you've got a modem, the chances are you can launch yourself into cyberspace, the global computer network otherwise known as the Internet, an international community and information exchange network; it's also a meeting place where you can chat and share files with people from all around the world.

The Internet, a sprawling collection of bulletin board systems and official on-line services, is the first stop on the much vaunted Information Superhighway and each of the five books reviewed here explain all the Internet basics, describing what the Internet is, what you can get from it, how to use electronic mail (e-mail) and how you can connect to other 'remote' computers to download files using ftp.



**Success with Internet** by Allen L. Wyatt tries to cover everything mentioned above and more. As with all the books reviewed here, *Success with Internet* begins with a brief history of the Internet, explaining how the network grew from a scientific and educational system into the digital shantytown of assorted bulletin boards, official on-line services, universities and businesses that it is today.

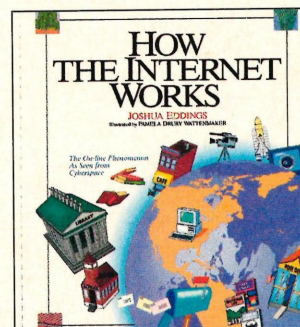
The book is written in a straightforward style, but even if you're a relative Internet beginner, it explains how the system works and what you can hope to get out of it very clearly. However, at 430 pages, this book is far from being a light read. It's very text-heavy and although not entirely practical as a step-by-step tutorial, is useful as a reference guide.



**Riding the Internet Highway, Deluxe Edition** by Sharon Fisher, Steven Vaughan-Nichols and Rob Tidrow, also focuses a fair bit of attention on the bare basics. There are three chapters on the overall introduction alone, but it's presented in a stylish, text-heavy format interspersed with helpful notes and shortcut tips that help you drive off the Information Superhighway and park your digital butt in the global village.

It goes on to provide a basic introduction to the main features of the Internet, including the old favourites: e-mail, ftp file transfer, Usenet conferencing and searching tools, such as Gopher.

If these first two books seem a little complicated, *How the*



**Internet Works**, by Joshua Eddings, is a book that makes good use of illustrations and pictures to describe what's going on. Remember the French text books you used to work from at school? The ones that used to have a big picture of a cinema and a girl and the caption, "*Marie-Claire va au cinema ce matin*"? This book is a bit like that. The text is kept to a minimum and the colourful pictures and diagrams help to illustrate the key points.

It's perhaps unfair to call the book an idiot's guide, but as it assumes little or no technical knowledge on the part of the reader, this is what it most resembles. As I've mentioned before, all the essential Internet basics are covered here and so



when you switch the PC on. Floppy disks also have a boot sector.

Secondly, file viruses attach themselves to 'executable' files on the PC, that is, files with names ending in .EXE, or .COM. These viruses are activated when you run the infected program.

So, your machine cannot suddenly develop a virus all on its own. You need to have actually copied the file which contains the virus to the machine at some stage, albeit unwittingly. The obvious external sources for a virus to be transmitted to your hard disk are from an infected floppy disk (most common), from an infected file on a bulletin board (rare these days, since any half-decent bulletin board will run its own virus checks), or over a network.

What viruses actually do varies. Early viruses were often more mischievous than malevolent: a message might appear on-screen ("Your PC is now stoned" was the on-screen notification for the very old Stoned virus), or the display would go wonky. Unfortunately, the majority will try to damage the system in some way, deleting files, or reformatting part of the hard disk, or overwriting sectors with garbage.

## Prevention is better than cure: how to protect yourself

- Write-protect all program disks so that no files can be copied on to them. On a 3.5" floppy, you write-protect the disk by moving the notch at the top left hand corner on the back of the disk upwards. You should now see a square hole where the notch was previously.

- Keep all important data backed up, so that in the event of an attack, you do not lose everything beyond retrieval.

- Make a system disk (see the panel on making a boot disk elsewhere on these pages), ideally immediately after installing the operating system on a new PC. Write-protect and label it, so that in the event of an attack, you have a way to 'clean-boot' your PC.

- Exercise reasonable caution over the floppy disks you use in the PC. There's no evidence that games software is more likely to be infected than business applications, but every reason to suspect that pirated software is more likely to carry viruses than bona fide commercial disks ('real' disk duplication companies have their own virus

checkers, and pirated software is more likely to have travelled about from machine to machine).

- Buy a virus protection program — see the Useful Products panel for details of some of the packages available. There are programs which will just scan for viruses without being able to repair them, but you are better off with a more expensive package which will also repair and which is updated regularly to take account of new viruses, particularly so-called stealth viruses which are designed to evade detection. Note also that DOS 6 includes a virus scanner and repair package. checker. Use it!

## Murphy's Law

There is probably also a variant of Murphy's Law in operation which states that if you spend a lot of money in an anti-virus program, it will never detect a virus, but if you decide not to buy one, then sooner or later you'll use an infected disk.

If you think you've picked up a virus, or your scanner has announced a virus alert, here's what to do:

- Stop whatever you're doing.

- Switch off the PC.

- Put in a write-protected boot disk — one that you know is clean, see above — in your floppy disk drive.

- Switch the PC back on.

- Run your anti-virus program to repair the damage.

- Now take all your floppy disk drives and run each one through the virus checker.

NB When you clean up after a virus attack, take care to scan *all* your floppy disks. Any disks that you have used while the virus has been dormant in the machine may still have an infected file on them — and may not be the original source of the virus. After cleaning up the hard disk, you will only re-introduce the virus if you then use an infected floppy disk.

Don't worry unduly. Viruses are not lurking around every corner. Strange, inexplicable things happening on your PC are far more likely to be the result of hardware or software faults, poor configuration, or loose connections than virus faults. Viruses are *rare*.

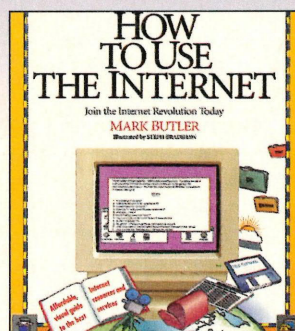
For example, all PC Review's

## BOOK REVIEWS

If you're at all confused about networks, world wide webs and gophers, *How the Internet Works* is a simple and friendly introduction to it all.

The book is also noteworthy because it doesn't just tell you how to send e-mail and ftp files but how the Internet system is structured and how it actually works. This may well be your perfect Internet starter's guide.

If you like the idea of a user-friendly, jargon-free guide, *How to Use the Internet* by Mark Butler is the sister title to *How*

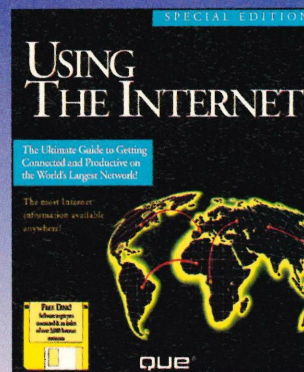


the Internet Works. As such, the book also uses big, colourful illustrations to explain the individual topics and where *How the Internet Works* focuses on what happens behind the scenes, *How to Use the Internet* is a step-by-step tutorial, introducing various Internet resources and explaining how to find and use them.

It's an easy, pleasant read, aimed primarily at American schools and people who have a modem but get rapidly confused whenever anybody mentions baud rates, com ports and Gopher clients.

As a beginner's guide the book is fine, but while *How the Internet Works* scores well because of the educational information it delivers, *How to Use the Internet* doesn't really get beyond the basic ftp, telnet and Usenet options. So, if you've already dabbled on the electronic Infobahn there's really nothing you can learn from this book. You'd be better off paying that tiny bit extra and buying one of the bigger books.

And if it's big books you're after they don't come much bigger than *Using the Internet*, Special Edition by



William A Tolhurst, Mary Ann Pike and Keith A Blanton.

Needless to say, there's a mountain of information contained within this 1,200 page tome and the authors go into every aspect of the Internet in a huge amount of detail.

But not only does it explain ftp, telnet and all the other basic commands, *Using the Internet* also speculates about the legal considerations of Internet usage. What happens to international copyright on the net? Can you advertise? The book also attempts to look to the future, wondering where the Internet can go next.

This is by far the biggest book I've seen about the Internet and, like *Success with Internet*, it's best used as a reference guide.

One final word of warning: however useful these books are, they are all US-orientated guides and while most of the information is useful UK users are often left out in the cold.

- *Success with Internet*, ISBN 1-884133-01-0, £24.99 by Allen L Wyatt.

- *Riding the Internet Highway*, Deluxe Edition, ISBN 1-56205-315-9, £23.49 by Sharon Fisher, Steven Vaughan-Nichols and Rob Tidrow.

- *How the Internet Works*, ISBN 1-56276-192-7, £22.99 by Joshua Eddings.

- *How to Use the Internet*, ISBN 1-56276-222-2, £16.49 by Mark Butler.

- *Using the Internet*, Special Edition, ISBN 1-56529-353-3, £37.60 by William A Tolhurst.

Available from most large bookshops, or from Computer Manuals on (021) 706 6000.



# GLOSSARY

**8-bit:** a bus (see below) or processor which can transfer and process data eight bits at a time. See bits, below.

**16-bit:** a bus (see below) or processor which can transfer data 16 bits at a time. A 16/32-bit processor, such as the 386SX takes data in and spurs it out 16 bits at a time, but internally processes it 32 bits at a time.

**32-bit:** a bus (see below) or processor which can transfer and process data 32 bits at a time.

**3DO:** a digital CD-based console system developed by The 3DO Company, intended to set a standard for interactive entertainment on CD (as per CD-i). The name is derived from a rather excruciating extension of audio, video.

**Analogue:** a device capable of representation by electrical voltages rather than electrical signals.

**Ansi.sys:** this DOS file can be loaded as a device in Config.sys and then used to present very basic coloured block displays on-screen.

**ASCII:** (*pron Ass-key*) stands for American Standard Code for Information Interchange. An ASCII file is a plain text file which contains no codes specific to the software the file was created with.

**Autoexec.bat:** a file you create on your PC which is acted upon every time you switch on the machine and which tailors the PC's configuration.

**BASIC:** stands for Beginners' All-purpose Symbolic Instruction Code. A programming language.

**Batch file:** a file with the extension .BAT consists of a series of other DOS commands, so that you can implement a series of commands in one go. A very simple batch file might consist of the following:

```
CD\
MOUSE/MOUSE
CD THARG
THARG
```

which would move you into the root directory, load up the mouse driver, move to the Tharg directory and start up the program Tharg. If you named this

file GO.BAT, you would only need type GO to load up Tharg.

**Baud rate:** speed of transfer by a modem as measured in bits per second. See modem.

**BBS:** stands for Bulletin Board System. A database of programs, demos, and mailbox areas which you can phone using a modem. Facilities vary, but normally include access to the programs, the option to upload your own data and to 'chat' on-line to other users.

**Bit:** the smallest unit of computer data, equal to either of the digits 0 or 1 (bit actually stands for 'binary digit').

**Bitmap:** a way of defining a graphics image so that one bit equals one pixel.

**Bootling:** booting up the PC is the same as switching it on and loading up the start-up programs.

**Buffer:** an area of memory used for temporary storage. The buffers command in the Config.sys files specifies how much RAM MS-DOS reserves for storing bits of data that can be called upon more quickly than accessing the hard disk. Printers normally contain a memory buffer into which the file to be printed is transferred, leaving the PC free for work on other applications.

**Bus:** the software, hardware and wiring that enables the different parts of your PC to communicate with each other. The expansion bus connects the PC to external devices.

**Byte:** a unit of data equal to eight bits; more understandably, one character in ASCII (plain text) takes up one byte of space.

**Cache:** a form of buffer memory, a disk cache or cache memory is an area where data is stored and can be transferred rapidly rather than being called up from the hard disk, floppy, or CD-ROM.

**CAD:** stands for Computer-Aided Design. Technical drawing

on the computer.

**CD-i:** stands for Compact Disc Interactive. A digital CD-based machine developed and sold by Philips with limited compatibility with other CD-ROM formats.

**CD-ROM:** stands for Compact Disc Read Only Memory. Physically the same as the compact discs you play music on, CD-ROMs hold up to 600Mb of computer data, stored digitally.

**Centronics:** the standard interface for computer printers, named after the manufacturer.

**Chkdsk:** Useful, but not fool-proof, DOS command which when used regularly, will check your hard disk for file errors.

**CIX:** stands for Compulink Information eXchange, a bulletin board and e-mail service.

**CLI:** stands for Command Line Interface. A system, such as DOS, in which you must type in the correct commands to get the computer to perform.

**Clip art:** usually found in art packages or desktop publishing programs, these are files of images saved in the program's preferred format.

**Co-processor:** an additional processor used for auxiliary functions, especially mathematical operations.

**Command.com:** This is MS-DOS's command interpreter, a file which contains the bulk of the commands for MS-DOS, and without which your PC will not function.

**Config.sys:** a file which you create on your PC to load up device drivers for items such as a sound card, CD-ROM drive, etc, every time your machine is switched on.

**Conventional memory:** The first 640K of RAM, into which MS-DOS is loaded, and the place where all your programs must run from.

**Cpi:** stands for characters per inch. Used to describe the width

of character output by a printer.

**Cps:** stands for characters per second. Used to describe the speed of printer output.

**CPU:** stands for central processing unit. Generally means the processor inside your PC, but it's often used loosely to refer to that and the motherboard as well.

**Digital:** making use of binary digits, eg, a device, such as a computer in which data is stored as binary numbers, as opposed to analogue devices (see above).

**Digitisation:** the act of turning non-digital data into a form understood by computers (ie, in binary digit form). Most often used at present to describe graphics (taken from film, paper, slides, etc) or sound (taken from tape) which is scanned (see below) into a computer-compatible form.

**Directory:** Your PC files can be grouped together in directories on a hard or floppy disk to make easier to sort them or find them.

A common analogy is to compare the files with documents, stored in folders (directories) in a filing cabinet (the hard disk).

**DOS:** stands for Disk Operating System. This is a generic term which can refer either to MS-DOS or DR-DOS (see below).

**DOS shell:** a pseudo-graphical user interface (see below) included with MS-DOS v4 and later.

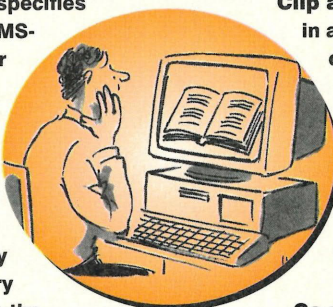
This presents your filing system in tree-structure form and can make it easier to find, sort, copy and move files than typing commands at the C:\ prompt.

**Dot matrix printer:** printer which produces output by firing pins through an inked ribbon.

**Download:** to transfer data from a bulletin board system or central database on to your own computer.

**Dpi:** stands for dots per inch. A way of describing the density of output from the computer.

**DR-DOS:** stands for Digital Research Disk Operating System. An alternative and rival





## GLOSSARY

to MS-DOS, with some different functions, but compatible with it.

**DTP:** stands for desktop publishing. Software which enables the user to mix text, and graphics in a document to produce newsletters, newspapers and magazines.

**DX:** The DX sub-set of processors are the full-blown versions in their grade. A 386DX is a 32-bit processor as opposed to the 16/32-bit 386SX. A 486DX is a fully enabled version of the Intel 486 family.

**DX2:** A version of the 486 processor which does its internal calculations at twice the speed of the equivalent 486DX.

**Edutainment:** a term for educational games, which mix traditional gaming elements with educational content.

**EGA:** Enhanced Graphics Adapter. PC graphics mode which succeeded CGA. Now, like CGA, virtually obsolete.

**EISA:** stands for Electronics Industry Standards Association. This interface is for use in 386 and 486 PCs and remains compatible with the older AT bus.

**Electronic mail, e-mail:** files sent from one computer user to another, often via a bulletin board, or over a network.

**EMS:** stands for Expanded Memory System. This was the first standard enabling MS-DOS to use system memory above 640K in the PC.

**Emulator:** a piece of hardware or software, used to enable one computer to behave like another.

**Expanded memory:** a form of adding system memory above 640K to the PC so that it can be used by MS-DOS, and also programs written to support it.

**Expansion ports, expansion slots:** the connectors in the PC into which are inserted add-ons such as sound cards, joystick cards, internal modems, etc.

**Extended memory:** a form of system memory above 1Mb which can be used by programs written to support it.

**Format:** to prepare a disk, either a floppy disk or the hard drive, so that it will accept the relevant data (ie, format a disk on the PC and it will accept PC data, format it on an Amiga and will take Amiga files etc).

**Game card:** or joystick card. A board which fits into an expansion slot (see above), which a joystick can be plugged into.

**Gigabyte:** 1,024 megabytes.

**Gouraud shading:** a graphic technique in which colours are blended at the edges and rounded at the corners to give the impression of smoothness and speed when animated.

**Graphical user interface:** a system, such as Windows, in which you move an on-screen cursor and 'click' (usually with a mouse) on pictorial representations (icons) in order to make the PC perform commands.

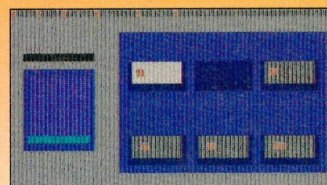
**Graphics card:** the circuitry which drives the type of graphics and resolution (density) at which they appear on-screen.

**GUI:** stands for graphical user interface. See above.

**Hidden file:** a DOS file which has been marked as 'hidden' will not be displayed on the directory listing, and cannot normally be opened, read or deleted.

**HMA, high memory area:** a 64K block of memory above 640K which MS-DOS can load into with the command Dos=high after the Device=Himem.sys line in Config.sys.

machines are equipped with memory-resident virus checkers which are upgraded monthly. We use disks from all sorts of places in

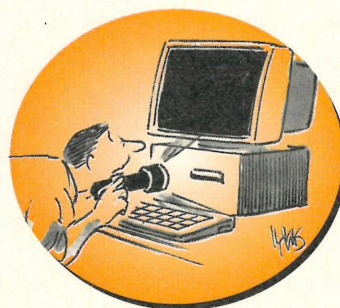


the course of each day, and in nearly three years, we've only had one virus scare.

Finally, magazine cover disks are generally safe to use. Any magazine worth its salt checks, rechecks and then checks again for viruses on the cover disk at each stage of production — PC Review certainly does.

## CONFIG. SYS AND AUTOEXEC.BAT

Config.sys and Autoexec.bat are two files which are processed every time you switch your PC on. Autoexec.bat contains commands which precisely configure your PC. Config.sys contains commands which — mainly — set up your device drivers.



### What are device drivers?

Anything that has been added to the basic PC box — like a sound card, a mouse, extra memory chips, or a CD-ROM drive — counts as a device for the purposes of the Config.sys file. Each device needs a driver, ie, a software file needs to be run which loads up the device so that your PC will recognise it.

A line in your Config.sys file which reads something like

**Device=C:\dos\himem.sys**

loads up the device driver for extended memory. Look out for the words Device= and then the location of the file.

**What is an upper memory block?** If you have extra memory (more than 640K RAM) fitted in the PC,

## REBOOTING

**Press Ctrl-Alt-Del to restart the machine so that it runs through its start-up files again. If the PC has frozen up completely, press the reset button which should be at the front of the PC and labelled clearly.**

you can load some of your device drivers into the upper memory area, which is between 640K and 1Mb. For example,

**Dos=high,umb**

will tell DOS to reserve you some upper memory blocks for device drivers.

### What is a country code?

A line stating which 'country code' you want to use helps to configure the way the machine displays the time and date — so that the day appears before the month, for example. This line will look something like this:

**Country=044,,c:\dos\country.sys**

044 is the country code for the UK.

### What about files and buffers?

You may have the following two lines in Config.sys:

**Files=20  
Buffers=20**

The numbers may be different: files=30, maybe, or buffers=15. Files=x determines the number of files MS-DOS allows to be open at any one time; Buffers=x determines the amount of RAM that MS-DOS reserves to hold information being transferred to and from disk.

Don't worry too much about these however, because their workings will be invisible to you unless a program asks to change the settings in your Config.sys file when it's being installed.

### How do I edit my Config.sys file?

Load it into a word processor, or type

**Edit Config.sys**

at the C:\ prompt. It's only lines of text, so you can change the words or delete or add lines, then save it (Alt-F, S, if you used EDIT to load it up). Then reboot your machine and the changes will take effect.



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**BEFORE YOU MAKE ANY CHANGES TO YOUR CONFIG.SYS FILE, ALWAYS BACK IT UP.**

Either copy it to a floppy disk:

Copy c:\config.sys as:

or copy it under another name:

Copy config.sys config.bak

## MAKING A BOOT DISK

If you're having difficulties freeing up enough memory to run a program and you're fed up to the back teeth with editing Config.sys and Autoexec.bat to no avail, an easy way out is to make a boot disk.

This is a floppy disk with just enough files on it to load MS-DOS, but not so many that it eats into your conventional memory.

There are two ways to create a boot disk, one for formatted floppy disks, and one for unformatted. All you need is the floppy disk, a sticky label and a pen.

If your floppy disk is already formatted, make sure it's blank, put it in your disk drive and then, at the C:\ prompt, type

**SYS A:**

This will transfer three files (four in DOS 6) from the hard drive to the floppy drive. The two system files, which are probably called Io.sys and Msdos.sys, are 'hidden' and not normally visible to a directory listing (so just take our word for it that they're copied across). The third is the all-important Command.com. The fourth, exclusive to DOS 6, is Dblspace.bin, which is also a hidden file. Once the files have copied over, your floppy disk is now a boot disk. It contains the bare minimum to run MS-DOS, while leaving plenty of memory free for running hefty games.

If your floppy disk is unformatted, you can format it and make it a system disk in one fell swoop. Put the disk in your floppy disk drive and type:

**FORMAT A:/S**

The format command will format the disk. The /s is called a switch, and tells DOS to transfer the three main system files to the floppy disk, making it a boot disk.

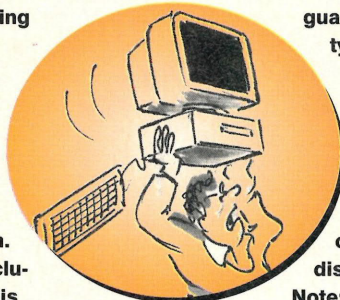
Now take the sticky label and pen and label the floppy as a boot disk.

Because the Sys and Format/s only transfer the fewest files necessary to boot the system, your mouse will not be loaded, nor will a sound card or CD-ROM drive be loaded with a device driver.

You can load these separately from the C:> prompt, after using the boot disk to start up, but it's probably easier to make Autoexec.bat and Config.sys files on the boot disk itself. And the easiest way to do this is to copy over your standard Config.sys and Autoexec.bat files from your hard disk and then remove all the lines except the ones you need for the program to run, such as the mouse driver, sound card settings, or expanded memory manager

lines. This at least guards against typing errors when you try to create the new Autoexec.bat and Config.sys on the floppy disk.

Note: several program manuals explain how to make a boot disk and suggest specific commands to go into the Config and Autoexec files on the boot disk — usually with regard to extended and/or expanded memory requirements specific to the program in question. Let the program manuals recommendations override your existing configuration if you want the program to work properly.



## GLOSSARY

**Icon:** a pictorial representation of a file or command on screen.

**Inkjet printer:** printer which works by ejecting tiny droplets of ink on the paper.

**Io.sys:** one of MS-DOS's two hidden system files. Needs to be present at start-up.

**Joystick card:** see game card.

**Kermit:** an old, unadvanced, protocol (method) for transferring files by modem.

**Key disk:** some programs require you to insert a master disk in your floppy disk drive while using the program on hard disk as a form of copy protection. This master disk is referred to as the key disk.

**Kilobyte:** 1,024 bytes.

**Laser printer:** printer which outputs in not too dissimilar fashion to a photocopier.

**Low level format:** Formatting a hard disk is a two-stage process: the initial low-level format prepares the disk for a high level format, after which data can be recorded. Occasionally, a low level format may be the only way to repair a damaged hard disk, although you will lose all existing data in the process.

**Main board:** general term for the motherboard of the PC.

**Maths co-processor:** a second processor in the machine, which is used to carry out mathematical functions by programs which support them.

**MCA:** stands for Micro Channel Architecture. An expansion bus developed by IBM, originally designed to bring the bus in line with faster 386 processors.

**MCGA:** stands for Multi-Colour Graphics Array, a graphics mode on some IBM PS/2 machines.

**Megabyte:** 1,024 kilobytes.

**Memory-resident:** a program which remains in memory even while other programs are running. Programs such as desktop organisers are often designed to be memory resident so that the user can switch to them at a single key-press; virus scanners usually remain in memory so that they can scan any floppy disks as they are inserted in the drive.

**MHz, megahertz:** the unit of frequency at which electric current cycles through the processor. Used to describe the speed of the processor.

**MIDI:** stands for Musical Instrument Digital Interface. A system by which electronic musical instruments can be connected to each other and to a computer, which then controls all of them.

**Mini-Tower:** a squat — roughly half-height — version of the Tower, where the PC itself is housed in upright casing. See Tower, below.

**Modem:** stands for Modulator/Demodulator. A device which enables you to connect your PC to the telephone line and send and receive data through it.

**Motherboard:** the main board for a computer circuit.

**MPC:** stands for Multimedia PC. A standard minimum specification for developing and running CD-ROM software.

**MPEG:** stands for Motion Pictures Experts Group, a compression standard for video images.

**MS-DOS:** stands for Microsoft Disk Operating System. The standard operating system for the PC.

The operating system is the base program which enables you to run applications on the PC, use disks and add-on devices and organise your files.



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Now make the changes to the original Config.sys and if it doesn't work, you can always replace the new one with the one copied earlier.

## So what is an Autoexec.bat file?

The Autoexec.bat contains a variety of DOS commands which are automatically executed when you switch the PC on. DOS will look for the presence of an Autoexec.bat file and then carry out the instructions in it. It consists of lines which will tweak things such as the way your C:\ prompt is displayed, the exact layout of your keyboard — so that you get a pound sign when you press Shift-3, for example — and it will define the precise settings for the device drivers loaded in Config.sys.

For example, try this: at the C:\ prompt, type the following, exactly as it appears below:

**Prompt \$t\$d\$\_\$p\$g**

What you should have now is, instead of boring old C:\, is the time, the date, then, on a new line, the current drive and directory as your prompt.

**\$t** displays the time;  
**\$d** displays the date;  
**\$\_** moves the next text down one line;  
**\$p** displays the current drive and directory;  
**\$g** displays a > sign to separate your prompt from your commands.

If you put that line in your Autoexec.bat file, in the same way that you alter Config.sys as explained above, then you will always see that information as part of your C:\ prompt.

## If I've already loaded the device drivers, why do I need precise settings for the devices?

The device driver simply tells DOS the device is there. Without Device=x, your x won't be recognised at all. The Autoexec.bat settings tell DOS more about how to use the devices, and can be tweaked, if you're feeling confident, to suit your exact configuration.

When you fit something like a sound card or CD-ROM, and run the install software that comes with it, nine times out of ten, the install program will automatically add these lines to Config.sys and Autoexec.bat with the correct numbers. It will probably ask you some

questions about your PC set-up, and if you don't know or don't have the manual handy, there should be a default mode you can choose for convenience. If you have bought a machine with devices already fitted, the correct settings should be included already in the Autoexec.bat file.

## Can I choose which Config.sys settings to use at each start-up?

If you have DOS 6 or later, you can choose which Config commands to activate. When you switch your PC on, the machine goes through its self-tests and after a few seconds, the words, "Starting MS-DOS ..." will appear on-screen. When that message is displayed, press the F8 key. Now you see the message

MS-DOS will prompt you to confirm each Config.sys command

You will be given a choice of pressing Y to carry out each command, or N to bypass it — useful if you want to disable temporarily the CD-ROM drive to free up more memory for a disk-based program, for example.

## What are multiple configurations?

Again, if you have any version of DOS 6, you can create a Config.sys file with separate configuration blocks. At start-up you can choose which block of commands to



process. So you might have a configuration block which loads the sound card and CD-ROM drive, and another which doesn't include these and leaves you with much more free RAM for those really memory-hungry games.

In very, very simple form, a Config.sys set up for multiple configurations looks something like this:

**[menu]**  
**menuitem=CD-ROM games**  
**menuitem=Disk games**

**[CD-ROM games]**  
**device=c:\cdrom\cdriver.sys**  
**device=c:\sndcard\sound.sys**

**device=c:\mouse\mouse.sys**

**[Disk games]**  
**device=c:\sndcard\sound.sys**  
**device=c:\mouse\mouse.sys**

Now when you switch on your PC, you will see the message

**MS-DOS 6 Startup Menu**

**1. CD-ROM games**  
**2. Disk games**

**Enter a choice:**

Take it from there!

## EASY FILE LISTINGS

- DIR /W** Displays files in 'wide' format, in five columns across the screen.
- DIR /P** Pauses at the end of each screenful. You press a key when you're ready to see the next screen.
- DIR /S** Displays all files in subdirectories as well as the current directory.
- DIR /O** Displays first the subdirectories in alphabetical order, then the files in alphabetical order.
- DIR /O:N** Displays files and subdirectories together in alphabetical order.
- DIR /O:E** Displays files and subdirectories together alphabetically by extension (the three letters after the full stop in a filename).
- DIR /O:D** Displays files and subdirectories together by date and time, earliest first.
- DIR /O:S** Displays files and subdirectories together by size, smallest first.
- DIR /O:G** Displays directories first in MS-DOS order (see below), followed by files in MS-DOS order.
- DIR /O:-N** Displays files and subdirectories together in reverse alphabetical order.
- DIR /O:-E** Displays files and subdirectories together in reverse alphabetical order by extension.
- DIR /O:-D** Displays files and subdirectories together by date and time, most recent first.
- DIR /O:-S** Displays files and subdirectories together by size, largest first.
- DIR /O:-G** Displays files first in MS-DOS order, followed by directories in MS-DOS order.
- DIR /A:H** Displays only 'hidden' files, not normally visible in a directory listing.
- DIR /A:S** Displays only 'system' files, not normally visible in a directory listing.
- DIR /A:D** Displays only 'directories, rather than files. DIR \*. is less long-winded, but this will also display files which do not have a three letter extension.
- DIR /A:A** Displays only files which have changed since last backed up using MS-DOS's Backup command, ie, if you don't use the Backup command, this will be all your files.
- DIR /A:R** Displays only 'read-only' files.
- DIR /A:-H** Displays all files except 'hidden' files. Although these wouldn't normally be displayed anyway, the point here is that *all* other files are displayed.
- DIR /A:-S** Displays all files except 'system' files, not normally visible in a directory listing. As above, this means that hidden files that aren't system files will show up on this listing, where they wouldn't with plain old DIR.
- DIR /A:-D** Displays only files, not directories — and will display *all* files, including hidden and system files.
- DIR /A:-A** Displays only those files that have not changed since they were last backed up using MS-DOS's Backup command.
- DIR /A:-R** Displays all files except read-only files.
- DIR /B** Displays simply the name of the file or directory — no date, no size, no info.
- DIR /L** Displays files and directories unsorted and in lower case.



# GLOSSARY

**Msdos.sys:** one of MS-DOS's two hidden system files. Needs to be present on start-up.

**Multimedia:** the use of data from different media in the same program.

**OCR:** stands for optical character recognition. Software which 'reads' text scanned into the computer with a scanner and converts it into the original characters.

**Parallel port, interface:** interface for parallel signals usually used to connect printers.

**Partition:** division of a hard disk drive into more than one 'logical' drive, ie, although physically the same hard disk, different areas are assigned their own drive letter.

**Patch:** an add-on disk to a program which can be bought by existing users and which usually fixes a bug, or provides an update to the original program.

**Path, pathname:** the 'tree' of directories and sub-directories that defines the location of a file or group of files. For example, c:\wordpro\john\sample.let is the path for the file Sample.let in the sub-directory John, in the directory Wordpro, which is in the root directory.

**Pentium:** The name for what is logically the 80586 processor. Intel, the manufacturer, gave the chip a name rather than a number to make life more difficult for rival manufacturers. Numbers — such as 586 — cannot be trademarked in the US but, of course, names can be. Thus, while other companies can develop what is, in effect, also a 586 chip, they cannot call it a Pentium and reap the reflected rewards from Intel's high brand name visibility.

**Pixel:** stands for Picture Element. The smallest size of on-screen dot that can be directly controlled by the computer.

**Port:** a chip which controls the connection of external devices to the computer. Often used loosely to mean the socket, the interface, the back of the PC, etc.

**Processor:** the chip that drives your PC, and deals with mathematical and logical operations.

**Program Manager:** the main screen, or 'front end' to Windows, from where all Windows operations can be accessed.

**Public domain:** software designed to be distributed free of charge, with no copyright attached.

**RAM:** stands for Random Access Memory. This is the dynamic system memory which holds programs and data while they are being worked on.

**Read-only:** a file or disk whose contents can be read or copied, but cannot be changed.

**Resolution:** the density of dots on-screen, or in printed hard copy (or in graphic files) which determines how detailed the picture (or print) looks to the eye.

**ROM:** stands for Read Only Memory. This is permanent memory, and in PCs is generally used for start-up operations — routines stored in Rom carry out the self-tests and activate DOS when you switch the machine on.

**Root directory:** the directory immediately under C:. See path.

**Scanner:** a device which 'reads' printed matter and converts it into digital information which can be stored as a computer file.

**Screen saver:** Spurious, but mildly diverting software which puts pictures and animations on your screen if you don't press a key for a certain length of time.

**SCSI:** (*pron Scuzzy*) stands for Small Computer Systems Interface. A multi-purpose interface between the computer and peripherals, mainly disk drives and CD-ROM drives. Provides very fast data transfer.

**Serial port, interface:** an interface which uses serial connections. Mainly used for modems, networks, and some mice. Standard serial interfaces on PCs come in two versions: 9-pin and 24-pin and adapters are readily available.

**Shareware:** Shareware is actually software designed to be used and distributed freely on a trial basis, but for which users

are expected to register and pay if they wish to use it regularly. It is subject to copyright.

**SIMM:** stands for Single Inline Memory Module. Board with a set of memory chips for comparatively easy RAM upgrades.

**Sound card, soundboard:** a soundcard or soundboard is an item which plugs into a spare expansion slot and enables programs to play music and sound effects through it, coupled with a set of speakers.

**SVGA:** stands for Super VGA (Video Graphics Array, see below). A general standard describing graphics modes of 800x600 and up to 1024x768 pixels with at least 256 colours on-screen.

**SX:** the 'cut-down' versions of processors. The 386SX processor is a cut-down version of the 386DX, because although it processes data internally 32 bits at a time, it only accepts and transfers data 16 bits at a time. The 386DX is a true 32 bit processor. The 486SX, however, is a 486DX without a built-in maths co-processor.

**System disk:** a floppy disk with DOS system files on it which will boot up the machine.

**System files:** the files which make up the operating system of the computer.

**TLA:** stands for Three Letter Acronym, much beloved of computer programmers, journalists and data processing managers.

**Tower, mini-Tower:** an upright casing for the PC, designed to save desk space, since it will stand on the floor.

**TSR:** stands for Terminate and Stay Resident, a memory resident program which you can exit from but call up, typically with a single keypress, since it is still stored in system memory. See Memory Resident, above.

**UMB, upper memory block:** smallish areas of unused memory between the first 640K and 1Mb. You can put drivers in here by using the command DEVICE-HIGH instead of DEVICE in the Config.sys file. Upper memory blocks are explained in more detail elsewhere on these pages.

**Upload:** to transfer files from your computer to another, typically to a bulletin board or central database.

**Vector graphics:** a graphics technique characterised by the drawing of geometric lines for precise scaling and movement.

**VESA:** stands for Video Electronics Standards Association. A group of graphics card manufacturers who have determined standards for high resolution monitors and graphics adapters.

**VGA:** stands for Video Graphics Array. An IBM graphics mode which has become the standard for PC colour displays.

**Virus:** a program which has been specifically designed to alter the contents of other programs, usually rendering the programs unusable.

**Virus checker, virus scanner:** a program that will check files for the presence of a virus, usually by looking for unexpected patterns in the file contents.

**Virus killer:** a program which will remove the virus elements from an infected file and — optimally — repair the file.

**Wallpaper:** the background to — usually — a graphical user interface screen, such as the screen background in Windows.

**Windows:** a graphical user interface developed by Microsoft for use with DOS on the PC.

**Write-protect:** to render a disk read-only, so that its contents cannot be altered, usually by moving a notch at the top of the disk's casing.

**XA, CD-ROM XA:** stands for eXtended Architecture. CD-ROM with additional video capabilities.

**XGA:** eXtended Graphics Array. IBM graphics mode.

**XModem, YModem, ZModem:** three different protocols — sets of rules — for transferring data via modem. ZModem has become the preferred standard.

**XMS:** stands for eXtended Memory System. See Extended memory, above.



## Q + A

**Links problems**

**Q** I am a computer beginner (at age 75) with a 486SX-33 running with Windows 3.1 and DOS 5.0. To date I've happily used flight sims and other games, but Links 386 Pro is another matter.

After installing the four disks and checking the VESA picture, I'm told "installation completed". As soon as I attempt to run the game I get "Memory protection fault" and a small jumble of figures/letters.

Following this I can still run Windows and other games, but not Links 386 Pro. Can you help?

**D F Bedford**  
Southampton

**A** You're not the only person to have trouble with Links Pro—it might even rate as the most difficult game installation of all time.

Part of the reason is that it uses VESA compatible graphics.

When you install the software you can tell it that you are using a VESA standard video board and it will configure itself accordingly.

Of course it is up to you to make sure that you are using a VESA standard board — and most boards aren't!

To make your video hardware VESA compatible you have to install a VESA video driver in your Config.sys file.

Links comes with a great many, but it is up to the video card manufacturer to supply a VESA driver. Some do and some don't and the quality is very variable anyway.

So there you have it — what it boils down to is that you need to load the correct VESA driver to make it all work.

Which of course, is always easier said than done.

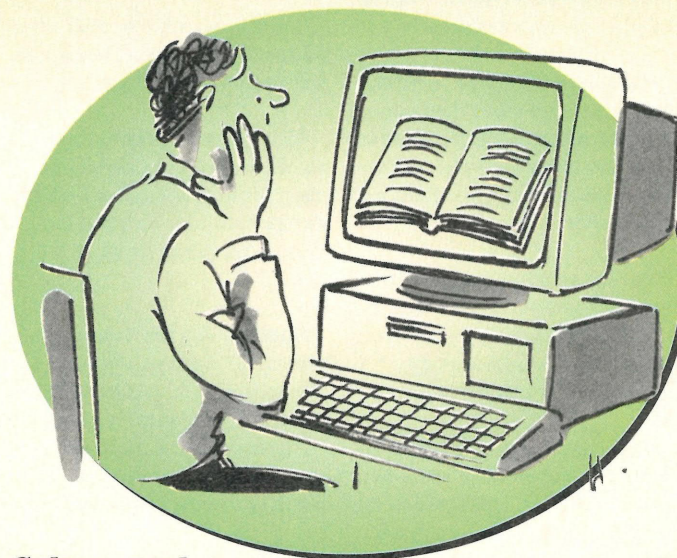
**Please make the joystick go away!**

**Q** I recently bought myself a beautiful NEC Ultralite notebook computer (486SL, 8Mb RAM), and I enjoyed every minute of it — until I tried to play Strike Commander. Whenever I try to start it, a box appears asking for me to calibrate the joystick, and will not let me go any further. Unfortunately, I don't have a joystick, nor can I add one on, without selling off all my camels and womenfolk so that I can afford a docking station. I had the same problem with Privateer, but solved it by disabling the serial and parallel ports in the BIOS setup (usual settings: serial port- 3F8h on IRQ4; parallel port — 378h on IRQ7). However, the same trick doesn't work with Strike Commander. Could it have something to do with the bus-connected mouse?

**Kieron Metre**  
London

**A** You have me very puzzled with this question. The reason is that I can't imagine why disabling the serial and parallel ports would have any effect on whether or not a program auto-detected a joystick. The reason is that the game port is supposed to be at 200 to 20F which is nowhere near the parallel or serial port. When you add to this the fact that it doesn't use an interrupt, you can see that disabling the serial and parallel ports should be something that software looking for a joystick should ignore. I suppose it is possible that it is something to do with the bus mouse sharing the same I/O port addresses — but why then should disabling the parallel and serial ports work? Anyone got any ideas?

Is your hardware making your head ache? Is DOS driving you dotty? If you've problems with your PC, share them with Mike James and he'll try to help.

**Galaxy card sound problems**

**A** After mentioning recently the problems that some readers were having with Galaxy Sound cards I received lots of letters about problems and some solutions. One or two readers wrote in to ask what all the fuss was about as their cards worked fine and always had. It seems that if you get the configuration of the card right and don't use it for anything other than games sound effects it does seem to work fine. Now to the specifics:

**1) Popping and crackling from the speakers when using the printer.**

Disable jumper J1, J2 (use the manual to locate them). These jumpers are used for the simulation of a parallel printer port. This is because the SG emulates the Disney SoundSource and Speech Thing audio devices. A real SoundSource or Speech Thing has to be connected to a parallel printer port so as to eliminate the need for an extra printer port, the SG emulates the printer port. When you enable the "Virtual" port, and you start printing, the SoundSource/ Speech Thing emulation has to be switched off and on for each item of data —

this is the cause of the popping and crackling. If you don't want to disable the hardware then try using SGCOX.EXE which should be in C:\SGNXPRO\UTILITY to disable the software emulation. Run this by typing SGCOX OFF.

Although some readers suggested that the use of IRQ 7 might be to blame this appears not to be the main cause of the problem. If you can it is better to stick with IRQ 7 because this is the default used by the standard Sound Blaster card.

**2) No sound coming through at the start of 7th Guest.**

The Intro Music Sequence is recorded on the CD-ROM as a normal audio track and it doesn't use the sound card to play back. To hear the intro music, you have to connect the CD-ROM audio port to the SGNX Pro. This can be done with a small cable (four wires on both sides of a 4-pin connector which can be connected on the back of the CD-ROM). This cable is normally supplied with the CD-ROM drive. All you need to do now is to use the mixer utility to set the volume of the Line In connector to a setting that you like... and you'll hear the intro music.

Alternatively if your drive does not have an audio out socket and you're



using it with its own dedicated interface card, you can connect the audio out sockets of the CD interface card directly to the Line In connector on the backplate of the SG sound card using the phono to 3.5 mm lead supplied with the SG card. Or connect a pair of speakers to the audio output! Again, use the mixer utilities to set the level of the Line In.

### 3) Faulty PCM-voice mode.

The hiss and distortion that many readers have encountered when playing speech and other PCM generated sounds, is more of a problem as its behaviour is much more erratic. For example some readers commented that running other programs such as Lands of Lore before 7th Guest caused the hissing to stop! Readers also noted that the same hissing was present on Rebel Assault and Day of the Tentacle and the same procedure fixed the problem. The only explanation is that Lands of Lore sets the card up differently and this setup remains in force when you run 7th Guest, etc.

### 4) Problems with Flight Simulator.

Very few readers seems to be having any sort of problem with FS5 and even when they were having other problems FS5 seemed to work fine. My only suggestion is that there may be a memory shortage or too small a sound buffer in use.

### 5) Keyboard locking.

No one suggested anything that would stop the keyboard locking on reboot, but to revitalise it without having to switch the machine off simply disconnect and reconnect it. This resets the keyboard controller.

The general opinion of users seems to be that the Sound Galaxy card is good enough to work well with the majority of games software. However there are still a few unexplained problems even when correctly configured. This seems to be due to software handling the card incorrectly and there is nothing much that can be done to correct this. There also appear to be at least two versions of the card in use, with only the most recent, (built in the last 12 months), being completely bug free — but no one seems to know for sure. Several readers commented that the MIDI interface and software wasn't usable but there wasn't enough information to draw a clear conclusion.

If you have any other comments about hardware or software that you think doesn't work then write in and let me know

Many thanks for the information supplied to:

**Mr T Blackwood, Edinburgh**  
**Colin Rodgers, Carlisle**  
**Alan Salmon, Bristol**

**Roland Muts, The Netherlands**  
**Gary Coupland, Kent**  
**Paul Greenstreet, Kent**  
**Matthew Bashton, Whitley Bay**  
**Jonathan Walezak, Kent**  
**John Edward Hudson, Scotland**  
**Jan-Wouter Arendsen, The Netherlands**

## Ultrasound and Sound Blaster working together ?

**Q** A number of readers have asked about getting the best of both worlds by using an Ultrasound and a Sound Blaster card in the same machine but configuration is a problem. Here is one reader's solution:

**A** I have been using both an Ultrasound card and a Sound Blaster 2 sound card together in my computer for six months now without any problems. The initial set up had to be done carefully but I had no problems running both cards together.

I have installed the Sound Blaster at its defaults, ie, Base 220h, IRQ 7 and DMA 1 as some software seems to have trouble finding a Sound Blaster without the default settings.

The UltraSound obviously needed to have different settings and I used Base 240h, IRQ 5, DMA 5 and MIDI IRQ of 12, ie, the Autoexec.bat line is:

**SET ULTRASND = 240, 5, 5, 12**

The installation program for the UltraSound will tell you that these settings fail the Sound Blaster test, which is quite correct as they are inappropriate for a Sound Blaster card, but you don't want the UltraSound card to emulate a Sound Blaster anyway!

Two further lines in your Autoexec.bat file may need changing. These are the "Set sound" and "Set Blaster" environment strings which should be changed to read:

**SET SOUND= C:\SB**

assuming your Sound Blaster directory is C:\SB and

**SET BLASTER=A220 I7 D1 T3**

Note that these lines will originally have been set to the UltraSound card settings and directory.

The only jumper to need changing is on the UltraSound to change the base address. The details for this jumper can be found in the UltraSound manual on page 94, but basically this consists of four pairs of pins initially set up as on, off, on, on

which should be changed to on, on, off, on.

To hear the output from both cards through one pair of speakers I connected the output from the Sound Blaster to the line in on the UltraSound and the speakers to the amplified output from the UltraSound.

If you use the Mega Em Roland emulator you must add the switch "-sboff" to the Mega Em command to prevent Mega Em from attempting to be Sound Blaster, which it can't do with an UltraSound MIDI IRQ higher than 7.

Now any software that wants a Sound Blaster can find one, and other software that looks for an UltraSound or, using Mega Em, a Roland can also find the card that it expects also.

**Gordon Hibbert**  
**Cornwall**

## Slow graphics

**Q** I hope you can shed some light on the following problems! I own a 33MHz 486DX and on the whole, I am quite pleased with the performance. However, on running Flight Simulator 5, the quality of movement is nothing short of terrible. I have a 1Mb video card and the quality of graphics is fine, but the frame rate is very slow. Any ideas?

Finally, I cannot get the Autoexe.bat program on screen. Whenever I type "Edit Autoexe.bat", the screen comes up blank. This isn't a problem with Config.sys editing.

**Stuart Brotherston**  
**Glasgow**

**A** No matter how fast a machine you have, it is still possible to find that its graphics performance is too slow.

The reason is that the very latest programs such as Flight Simulator 5 move a lot of data to the video memory and without help this slows everything down.

However you should find that Flight Simulator 5 works fine with almost any video card running in standard VGA mode.

It is only at higher resolutions that things begin to slow down enough to complain about.

So you can either reduce the resolution by selecting VGA, buy a faster graphics card, ie one that uses an S3 or Cirrus Logic chip or upgrade to a VL or PCI bus machine and video card.

As to your other question, the reason you cannot edit the Autoexe.bat file is that its name ends with a C, ie, Autoexec.bat!

## Two CD-ROM questions

**Q** I am thinking about purchasing a CD-ROM drive in the near future. I have narrowed my choices down to the Panasonic CR-562 which has 300kb/sec data transfer rate and 320ms access time.

My questions are:

- 1) Is 320ms access time fast enough for the latest software?
- 2) What is the difference between the CR-562 and the CR-562B?
- 3) What does it mean if a CD-ROM drive is MPC compatible?
- 4) What are the differences between MPC and MPC2?

**R Hughes**  
**Dundee**

**Q** I'm looking for a CD-ROM for my computer (486DX2) at the £140 to £160 mark. I own a Sound Blaster v2 with the CD-ROM interface on it, but what does this mean?

What does an AT interface card do and do you need one with the SbPro v2? If I was to upgrade to a Gravis UltraSound will I need one?

Two options so far are the Panasonic CR-562B and the Sony 33A-01. Any comments on these? What CD-ROM do you think I should get?

**Paul Murphy**  
**London**

**A** I don't like recommending specific pieces of hardware because the final choice depends on the price you are prepared to pay, how demanding you are and what sort of software you will be running. All I can say is that I use a Panasonic CR-562B because it is cheap and just does the job — but there are at least three other similarly priced drives I would be as happy to use and lots more expensive ones too! To answer the specific questions:

MPC II is the second level standard for multimedia computers. A CD-ROM drive on its own can't really meet the MPC standard because it applies to the whole machine, but essentially any double speed drive like the Panasonic can be described as being up to MPC II. Requiring a double speed drive is also the key difference from MPC I.

Is the 320ms access time fast enough? Well, no it isn't, but it is acceptable and drives with a significantly faster access time are much more expensive. In most cases software takes account of the fact that most CD-ROM drives are slow and so organise themselves on the disc to avoid excessive head movements. The difference between the Panasonic CR-562B and the CR-562 is that the B is internal and the non-B is external.



## Q&A UPDATE

### Where does the sound come from?

If you are planning to upgrade, or have upgraded, to a multimedia PC then you need to consider exactly how you are going to hear all the sound sources in your PC.

A multimedia machine usually has at least three active sound sources — the original PC speaker, the new sound card and the new CD-ROM drive. Many users assume that the sound card and the CD-ROM constitute a single sound source. But there are two different ways that sound can be generated by a CD-ROM drive. If you play a CD audio disc then the sound is created by the CD-ROM drive and appears at its audio outputs. In this case the sound card has nothing to do with it and often you will not hear the sound over the speakers connected to it. The second way that sound can be generated by a CD-ROM is via the software that runs the sound card. If a program reads the CD-ROM to get data that determines what sounds should be produced by the sound card then you will hear it over the speakers connected to the sound card.

Now imagine that you have one set of speakers to connect to your multimedia machine. If you connect them to the sound card you will hear any sound data that a program reads from a CD-ROM, but not any audio tracks. If you connect them to the CD-ROM drive then you hear the audio tracks but not the sound data.

The solution is to connect the CD-ROM drive's audio output to the sound card's audio input. Fortunately this connection has more or less been standardised. An audio lead with small white rectangular plugs is usually supplied with the CD-ROM drive. Unfortunately many users don't realise the importance of this insignificant looking lead and not only don't fit it, they actually throw it away! If you have thrown the audio lead away, then you can get a replacement, but look out for high prices — between £8 and £10!

If you feel up to it then you can make the connections yourself. The cable uses four pin connectors with the following assignments: 1) Right channel, 2) Ground, 3) Left channel, 4) Ground. As long as you have a suitable cable simply plug it into the socket at the back

of the CD-ROM drive and into the matching socket on the sound card. It's usually in the middle near the top of the board and marked CD Input or Audio Line In or something similar.

The complication is that if the CD-ROM drive is using a separate interface card, then the audio cable may already be in use and connected to the separate interface card. This is to allow the CD audio signal to be brought out at the back of your machine on a pair of phono sockets. You can, if you want to, buy an audio lead to connect the phono sockets on the back of the CD-ROM interface card to the Audio Line in connector on the back of the sound card — but it's a lot simpler to just move the internal connector! However, some sound cards — Microsoft's Windows Sound System for example — don't have special CD-ROM drive audio connectors and in this case an external audio lead is your only option. I have even seen a cable plugged into the headphone socket at the front of the CD-ROM drive looped over the machine to the back where it is plugged into the Audio Line input on the sound card!

It is even possible to connect up the PC speaker output to the sound card — but this is a bit more difficult. If you have a Sound Blaster Pro, for example, then there is a special input on the card which accepts a two-pin audio cable that comes from the speaker connection on your machine's motherboard. The problem is that it does matter which way round you insert the two-pin plug. One way round connects the +5 volt output intended for the speaker to earth and you stand a good chance of damaging your PC. Even if you get it right there is always the risk of someone accidentally putting the plug back reversed at a later date. As the only benefit you get from this modification is that you hear the terrible beeping noises produced by your PC over your hi-fi speakers, you're best off without it!

Finally, once you have all the hardware connections sorted out there is still the possibility that you will not hear the CD audio. This is because most sound cards have a built in mixer which controls the level of each sound input. To get the correct level you need to run the mixer utility that came with the card and set the Line In level so that you can hear an audio CD being played.

■ Mike James

An AT interface card connects the CD-ROM to your machine. A ribbon cable plugs into the drive and the interface card, which you then plug into an expansion slot. There are at least three different standards for the AT interface card — Sony, Mitsumi and Panasonic. The Sound Blaster Pro v2's CD-ROM interface is supposed to be used only with CD-ROM drives supplied by Creative Labs. However, as the model they currently supply is a Panasonic CR-563, which is a slightly modified CR-562B, you might expect CR-562B to work. I checked with Creative and they said it did work, but only if you use the software supplied by Panasonic, ie, not the Sound Blaster's drivers. They also pointed out that they didn't guarantee that it would work 100 per cent correctly, so any problems you encounter are yours to solve. Notice that the very latest models of the Sound Blaster will work with a wider range of CD-ROM drives including Sony, Mitsumi and Panasonic simply by changing a jumper.

The Gravis Ultrasound card does

support the Panasonic — and the Mitsumi and Sony — just by selecting the correct jumpers.

My final comment is that the first low cost triple speed CD-ROM drives should be available in a few months — just to confuse the issue!

### The upgrade question

**Q** My system is a Packard Bell 20Mhz 386SX with 2Mb RAM, 8-bit mono sound-card and a standard VGA card. As you can see my computer is limited to only playing yesterday's state-of-the-art games. I am currently saving up my dosh and have a few questions:

- 1) Can I upgrade my computer with any SVGA card, or do I need a Packard Bell one as my existing card is built into the motherboard?
- 2) If so, where can I get my hands on one? I saw an advert for a Cirrus True Logic for about £60!
- 3) I want to get a Panasonic CR562B CD-ROM drive. Can I install it with its controller card and connect the audio leads to my Sound

Galaxy BXII (which claims it can) until I get a 16-bit one?

4) I intend to buy another 2MB memory and I want to upgrade my processor, should I buy a processor upgrade that fits onto my existing CPU or wait until motherboard upgrades are a bit cheaper?

John Eddowes  
Scotland

**A** To get straight to the point: 1) You can use any video card with your machine but make sure that it fits an ISA bus and not a VL or other bus. The bad news is that you will probably also need to upgrade the monitor. The reason is that a VGA only monitor cannot work at high enough speeds to display on an SVGA screen.

2) Contact any dealer or have a look in the mail order advertisements. You should be able to find one for around £70. If you need to replace your monitor, then add about £150 to the bill for a 14 inch SVGA colour model. You can probably get the whole lot as a bundle for around the same price.

3) See the earlier questions about the Panasonic CD-ROM, but you should be able to connect it to the Sound Galaxy card.

4) The extra 2Mb of memory is only useful if you are planning to run Windows, where it becomes essential. Processor upgrades are easier to fit but they are more expensive than a motherboard upgrade. Personally I would go for the motherboard upgrade. If you want a 486SX then there are some good bargains around and the DX should be at its lowest price before the end of the year.

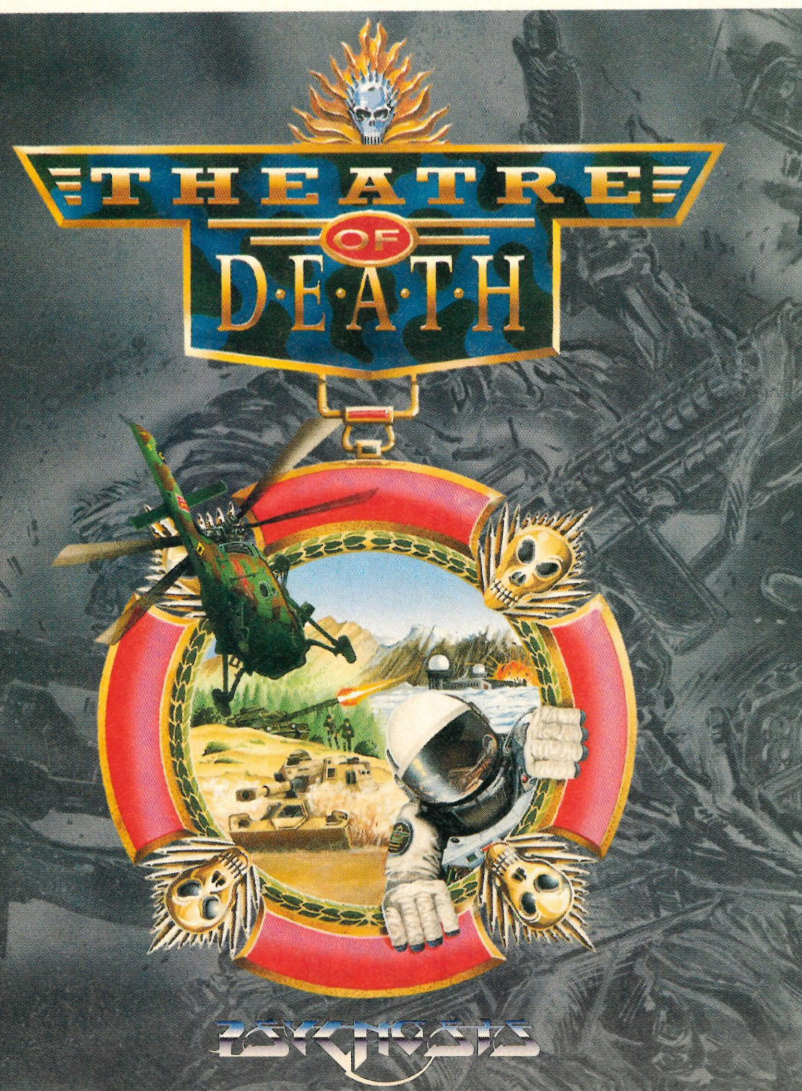
If you have a problem with your PC, you can write to Mike James at Q&A, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, or you can e-mail him at [Infomax@cix.compulink.co.uk](mailto:Infomax@cix.compulink.co.uk).

We're sorry, but Mike can only answer your questions on these pages, so please don't include SAEs or ask for personal replies.



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"Never,  
in the  
field of  
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conflict,  
has so much  
been owed  
by so  
many to  
so few"

◀ Psygnosis marketing man, Mark Day talking about the programmers of the fantastic new war sim **Theatre of Death**. Out now for the PC. Only £29.99 from all good computer software retailers

▶ Winston Churchill Strikes a pose c.1940



# Letters

PC Review welcomes your opinions on just about any PC-related subject. We reserve the right to edit your letters, and we'll also assume correspondence is for publication unless you state otherwise.

## Competitive advantage?

I have a number of points to make. First, if it's all right with you to photocopy competition entry forms, why can't you publish those forms in black on white, instead of in the colour of the rest of the page? Also can't you gather together the forms on a separate page at the back of the magazine? Some of the copies that I have made of forms with colour backgrounds have been almost unreadable. Gathering all the forms together would reduce the number of photocopies to be made.

The second is, do foreign readers ever win your competitions? I often enter them, yet can't remember ever seeing a foreign winner.

Finally a note to all those in last month's magazine who seemed to be over the moon about producing a magazine entirely on CD-ROM. Personally I would never buy such a product. How can I read my magazine on my way to work on the Metro, or in bed with a beer if it's on CD-ROM? There will always be a market for hard copy magazines until the day that you can access a CD-ROM standing up on a crowded commuter train. And contrary to public opinion we are not all computer nerds who want to (or can) spend our entire lives in front of a computer screen.

**John Ross Ashton**  
Gagny, France

*Point taken about using colour on the entry coupons. You don't absolutely have to use the entry form, you know. So long as you reproduce all the relevant information that appears on the coupon,*

*and you only enter the competition once, we won't disqualify you. 'Foreign' readers are certainly eligible to win, although after reading your letter, I checked back through recent editions of the magazine, and you're right, winners from overseas are a bit thin on the ground.*

*Your letter also mentioned a specific problem with your subscription, which I have forwarded to our subscriptions department.*

"There will always be a magazine market, until the day you can access CD-ROM on a train."

## Zork talk

I purchased a Gravis Ultrasound card with the full amount of the extra on-board memory on it for my computer about 18 months ago. I had heard that it was a brilliant card for sound and music.

When I got home, I slotted it into the computer and installed the software and tried testing Return To Zork on it. The music was excellent, and I suddenly thought I had bought the sound card of my dreams.

Until I got to Boos hut, when my machine crashed due to an error to do with the Gravis Ultrasound driver. Eventually we gave up with Zork and tried Wing Commander 2 instead.

The intro started with a not so bad sounding orchestra tune up. But

when the game actually started proper, the music and sound effects were terrible. So we took out the GUS and replaced it with a Sound Blaster Pro.

Then in one of your magazines you provided a couple of patches for the GUS card: Mega-Em, Emu-set and an updated version of SBOS. (On the CD-ROM with Issue 31, actually. Ed.)

On seeing these, I put the GUS back into the computer and installed the new software, then fired up Zork. It worked all the way through from the beginning right the way through to the end.

Then I tried Doom—brilliant. So after that I tried WC II using the Mega-Em and Emu-set patches that you had provided.

The intro came up, which sounded amazingly like an audio CD being played. The sound effects still sounded like pianos, so I turned the SFX off and let the music play. I still wouldn't mind someone to come up with a perfect patch for SFX as well as music.

Every thing worked perfectly, until I tried Strike Commander, Ultima 7 and Privateer. I rang up EA's technical support to ask if Origin or Gravis had come up with any more patches or drivers? The man said, "No."

So I asked if there was anything I could do. The man said, "No."

But he did tell me that there is a patch out for Ultima 8, which was very helpful.

The thing is, I have now bought about £130 worth of Origin's software, including speech packages and I can't play them.

How come the older game of Wing Commander 2 works so well, apart from the sound effects, and the newer games like Strike Commander and Privateer don't?

Do you have any information concerning new patches for the GUS?

**Joe Ainge**  
Cuxton, Kent

## Cabling made easy

I felt I had to write after reading the Editor's Comment (or should that be complaint) in Issue 33, July 1994.

If you are thinking of expanding your machine extensively, why accept a desktop case? I have a mini-Tower case which allows ample room for expansion and lets me locate nearly anywhere.

When I bought my CD-ROM drive, a Mitsumi FX001D, it also included an interface card, essential since I only have an 8-bit Sound Blaster. I opened the case, located an empty 5.25" bay and an empty interface slot (of which I have seven in total) and slotted the CD-ROM and interface card in. This was a painless experience, over in minutes. I then connected the drive to the card, using the ribbons supplied, my only complaint being that they are just a bit too long!

The CD-ROM drive fitted easily into the bay, above the one floppy drive and two hard drives already fitted, and the screws held it steady within the machine. The whole operation was over in 15 minutes.

I then followed the instructions on setting up the drive (which were in simple and easy-to-read English), and after a further five minutes fiddling, I was up and running Rebel



Assault and MegaRace on my brand new CD-ROM drive.

I had no problems with short cables, power supplies, bendy sound cards or dodgy installation instructions and am now very happy with my CD-ROM drive.

Installing a CD-ROM drive is nothing when compared to a motherboard upgrade. Upgrading my 386SX board to a 486 board was a nightmare! After two days of getting nothing but a beep from a board lying from a machine with its guts hanging out on the floor, I eventually traced the problem to the board short circuiting on the casing, which was solved by a piece of paper no bigger than a stamp.

Fitting my CD-ROM was a comparative breath of fresh air!

**Glenn Walker**  
Chalfont St Peter, Bucks

*As the complaining editor in question, I appreciate that a Tower case often has more room for expansion inside, but my PC is a desktop model, and I expect a lot of people reading this also have a desktop case. The technical configuration you want may not be available with a Tower, and they are often more expensive. Incidentally, one CD-ROM drive supplier rang me to say that after reading the Comment piece, they had sent some poor soul out to measure all their ribbon cables to make sure that they were all of a reasonable length!*

### Keep it simple, stupid

I don't care what Mike James says: (PC Review Issue 29) leave the coverdisk alone. It just keeps getting better. You manage to combine the perfect amount of shareware, demos, games and utilities into just one or two disks.

Upon getting Issue 29 home, I tried both 3.5" programs. A comment of "not bad" for the card designer, was followed by awe-struck gasps of amazement. Now which of your writers was whingeing a couple of issues ago about the lack of five minute Window games? I forget, but I hope that they have seen Mother of all Battles! Wow!

With that taken care of, I move on to my plea to games publishers: bring out some simple, entertaining, DOS 3.1 (in my case, MS-DOS 5.0) accepting, MDA, 8086 (or here, V20) games.

At my father's office, I am the 14-year-old geek (or nerd) who goes around overhauling the salesmen's Olivetti Quaderno notebook. While installing Word on one machine, the owner asked me if I had seen any commercial monochrome games that would work this machine type. I looked blankly at him. Not shareware: he wanted a full, entertaining

game with a glossy manual and a big publisher's name he could gloat over. Something he could really get his teeth into. What am I asking? Is this beyond the technology of today's games? I think not. I know it is not. Why can't publishers do this? It is no great feat. The key is simplicity.

Most adults (my parents, obstinate computer teachers and sales staff) can't even understand how to use Galaxy Lite without heaps of practice. So how on earth are they going to grasp some Simarilion-sized Ultima game? Which company's programmers could do it first? My votes at this point in this market would go to Maxis (SimCity, El-Fish) and Sid Meier (Railroad Tycoon, Civilization).

Publishers, do yourself a favour, take care of old technology as well as the new and remember Kellogg's highest ideal: "Ye Olde Simplest Things in Life oft ye best."

With the rapid rate at which operating systems are moving now, I would like to see an OS/2, LINUX or at very least a non-Microsoft operating system column regularly in PC Review. I suggested those two operating systems because they are essentially home users' operating systems. The number of machines running OS/2 v2.1, WIN-OS2 v3.1, DR-DOS 5.0 (only because some software requires it, DR-DOS is far better), a second DR-DOS under Dual Boot and we are about to put LINUX on. Those who are serious about computers would greatly appreciate something beyond the terrible DOS and even worse Windows. And with that, I rest my case.

**Craig Turner**  
Seaview Downs  
South Australia

### Advanced warning

I am probably from a small minority, (being both female and 43), who came to games through the austere route of using the computer initially for business applications. I thoroughly enjoy a good computer game, SimCity being a case in point, as well as some of the role-playing games such as Monkey Island or Indiana Jones.

As I work from home, and thus the computer is available after hours to my young daughter, I have encouraged her to join me playing. The comment is this: could there be some general notation in reviews to indicate the level of violence/bloodshed etc and/or the general maturity level necessary to enjoy the game, if it is clearly intended for older players?

For example, I bought 7th Guest on mail order and it was only after receiving it I saw it had a 15 Rating. It is a superb game and I might have

bought it anyway for my own entertainment, but from all the reviews I read, all I had ascertained what that it was an excellent play, not that it was probably not appropriate for eight-year-old. She, having heard

"Could you indicate the maturity level necessary to enjoy a game in your reviews?"

all the build-up and having waited for the package to arrive, was excited to play it, and it probably wasn't wholly appropriate.

I have no desire to censor anyone else's games, but when forking out £40 of my own money, I want to know that I am getting a game I am going to be glad I bought and, if when buying it, I can tell if it is appropriate for sharing with my young daughter.

**Torey Hayden**  
Gatehouse of Fleet  
Kirkcudbrightshire

### Pain in the butt? Yes!

In your June 1994 edition you included an article on the trials and tribulations of PC ownership ("Why is the PC Such a Pain in the Butt?") While reading it I became compelled to write with my observations as a retailer of not only hardware, but software too. These observation, I am sure, would be atypical and not the 'sole' ownership of PC users in Australia.

The most confusing and irritating aspect for owners of DOS-based machines that I have experienced is definitely memory. I get more questions/complaints concerning memory and its configuration than I can poke a stick at and, of all those questions, the one most asked by a frustrated owner is, "Why does there have to be free conventional (ie, base) memory, extended memory and expanded memory? Why can't they design DOS to have just memory?"

I thoroughly agree. The one 'fix' that would bring untold thanks to Microsoft would be to release DOS 7.0 (or whatever) where the operating system sees everyone's little megabytes as a whole. No 640K of base, untold megabytes of upper, extended or expanded...just total memory.

If your machine has 2Mb, then that's what the system sees. If it's got 32 Mb, that's what the system sees and takes advantage of.

Whether or not this is technically viable I don't know. But it would certainly wipe out over 50 per cent of the questions and problems I currently receive.

Another matter that takes a lot of my time relates to manuals that are supplied with software. I am not referring to games manuals but productivity software manuals.

It is ludicrous to buy, for instance, a word processing package for Windows and then open it to find half a dozen 3.5" disks taking 10 per cent of the box space with the remainder occupied by a book or books the size of encyclopaedias. The novice owner is immediately wary and in a lot of cases concerned that he or she should have taken a university course in computing in order to use this 'user friendly' software. Any pretense at user friendliness is immediately offset by the size of the manual.

The problem is amplified by the fact that most of these manuals are written (supposedly) by computer literate people who all seem to have a problem understanding the fact that the person who has just bought the package may never have owned a computer before.

In some instances where I have installed programs for customers I have urged them not to open the manual. In one case I insisted on taking the manual with me, telling them that if they couldn't do what they wanted via the on-screen help menu then they could have the manual back. When I checked with them two weeks later they were quite happy never to see the manual again.

Why can most games publishers include manuals that are easy to read and understand, yet the productivity people can't follow suit?

One other beef that customers and I have concerns sound cards. If 'industry standard' video cards are included as part of the hardware system — let's face it, without a video card you can't do much — then it's about time a similar practice was carried out with sound cards.

The problem here is caused by the enormous variety of sound cards available and each manufacturer claiming that theirs does everything but make the bed while still being "Sound Blaster compatible." Sound cards and their set-ups cause almost as much confusion with customers as does memory.

You are 100 percent correct when asking why PCs are a pain in the butt. The examples quoted in your article and those above should be rare exceptions. Unfortunately for all of us, they are the norm.

**Bruce H Kennewell**  
Monash, Australia



## Zipped up

I agree with you about the PC being a pain and I have a few additional comments to make.

If you are so keen on not having to install software, then why was the software on your CD zipped? I also have problems configuring the software on your cover disk — Battle Isle and Star Trek. Why can't you include a standard Autoexec and Config on the disk and allow the cover disk to be used as a boot disk? Or you could have a batch file that generates such files by asking questions like: do you have a sound card?

There are also some other points for software manufacturers that I would like to see taken up:

1) Volume control through software, such as found in Doom, as I find it very annoying to have to continually reach round the back for the tiny dial that marks my volume control.

2) Better joystick calibration, the ability to recalibrate a joystick after the game has loaded, and to test the calibration until it works. My joystick is digital and has no XY trimmers so if the calibration does not work I have to either, a) reload the program and try the calibration again, or, b) use keys. Big offenders here are Doom and Rebel Assault. Even when using my friend's joystick with the trimmers, the first go on a game is spent getting the joystick to stop going continually left, while also destroying aliens and dodging walls.

**Adrian Spink  
Dover, Kent**

## Only in America ...



I've been reading your magazine for about six months now and enjoy it immensely. The change in perspective from the other side of the ocean is larger than I would have predicted. Most of the computer magazines in the States are either recycling press releases or are examining the socio-logical aspects of Doom. That must be how you convince your parents that all that money for the diploma wasn't wasted.

One thing about computing in the UK that jumps out at me though is the prices. Are the outrageous prices asked for both hardware and software the result of VAT, or an attempt to protect a local computer industry? I can, with a little shopping find CD-ROM games for under

\$20.00 (Gabriel Knight, Iron Helix, F-15 Strike Eagle III) and hardware at similar savings (486 DX2/66, 8Mb RAM, 340Mb hard drive, SVGA monitor and card, sound card, CD-ROM \$2400). I'm amazed that computer gaming has the level of support it does in the light of those prices in the UK.

"One thing about  
computing in the UK  
that jumps out at me is  
the prices."

The other surprise is how popular the Amiga was in the UK. In the States the only Amiga fans I know are those who have the Video Toaster. Most of those are using them professionally. The Amiga was a fine piece of hardware but, like the Beta-VHS competition, it lost.

The only wish I have for your magazine (other than a British slang to English dictionary) is that you would list the distributor for the European games in the States.

**Dan Wasson  
Detroit, Michigan  
USA**

PS If you ever get to Detroit, instead of running to the airport like your hair's on fire, let me take you to a local computer trade show. I'll show you how to shop on the cheap.

## Pump up the volume

A very good bunch of cover software on the July issue. Drag & View was just the sort of thing I've been wanting for for some time, and I'll be sending off the fee for that to Nil-dram Software.

The demo CD also made me a convert to spoken, rather than text, dialogue, which previously I hadn't been especially keen on, thinking it rather a waste of time.

One problem I did find with these games, which I originally found when running Myst, was the difficulty of getting sound volume settings correct. Up until recently I'd never had to touch the volume settings on my speakers, as I'd sorted out what SB Pro settings I was happy with, but when I got Myst I found that it seemed to ignore these, and I had physically to go and turn the volume controls right down on

the speakers for it to play at an acceptable level without annoying the neighbours (and me). The Astro Fire game on the July cover disk had the same problem; my normal volume settings come out as shatteringly loud.

With the various demos on the CD the problem is even more acute, as the volume on any particular game may be normal, whisperingly quiet, or shatteringly loud, apparently dependent upon the order in which I run the programs. I did find in some instances that starting up and quitting Windows before running one of the games did sometimes restore the volume to a reasonable setting, but this isn't very convenient. Is there any consistent and simple solution for this?

**Jim Grimwood  
Hatfield, England**

## Generous to a fault

Well done on a great magazine. We have only one criticism. You are too generous with your markings. Some magazines who have the equivalent of your nine, are over 30 issues old and have only awarded about 10 games this mark. We would be quite happy to see a nine game in just some issue rather than in every one. OK, so this would make the Recommended competition rather useless, but you could give Recommended games away from past issues.

Oh, and the cover disks are great. Some magazines will give you a sad pathetic game on a disk, let you see how sad and pathetic it is, then, in the same issue, they give it 91 per cent. Some magazines slap "Exclu-

sive" on the disks hoping we don't realise we got the same demo from a different mag the month before.

So keep up the good work.

**Rachel "Reservoir  
Dogs" Elliott and Sarah  
"Sheep" Quilliam  
Santon, Isle of Man**

## Lost classic

I am a devoted fan of PC Review and have been reading it since October 1993. One of my favourite regulars is Classic Game of the Month, which used to be on the page opposite the inside back cover.

In the May issue I turned there to find there was no Classic Game of the Month, but the Next Month page. I turned to the Contents and found it wasn't listed like it used to be. I eventually found it on pages 96 and 97 in a tiny little box along with PC Review Recommended and Ciarán Brennan.

I then read this month's (June) issue to find that, again, Classic Game wasn't opposite the inside back cover and it wasn't anywhere in the issue. It seems to have petered out altogether. Perhaps you could bring it back?

Maybe I'm making a mountain out of a molehill, but I am rather irritated by it.

**Alex Sharpe  
Petersfield, Hants**

Write to Letters, PC Review,  
Priory Court, 30-32 Farringdon  
Lane, London EC1R 3AU, or  
contact us by e-mail:  
pcreview@CIX.compulink.co.uk

## COMPETITION WINNERS

### Star Wars Extravaganza (Issue 31 supplement)

Our first prize, a huge bag of Star Wars goodies, including Chewbacca and Yoda headsets (!) and a complete set of Star Wars games goes to Robert Nixon, of Alloa, Scotland. The five runners-up were as follows: Duncan Hill, of Tonbridge, Kent; Scott Chandler, of Nuneaton, Warwicks; Max Percival, of London N10; Robert Birley, of Shrewsbury, and Mr P M Hiller, of St Ives, Cambs.

The answers were 1) A, carbonite; 2) C, Darth Vader; 3) B, two; 4) B, protocol; 5) B, Carrie Fisher.

### Winprinter competition (issue 32)

First prize of an NEC Superscript 610 goes to Andrew Herman, of Swansea; second prizes of MicroGrafx Picture Publisher to Martin Titton, of London W3, and D Westlake, of Reading, Berks. Ten runners-up prizes of Bluebyte's Settlers to S Zissakis, of Stretford, Manchester; Michael Cox, of Welwyn, Herts; A Whittles, of Shrewsbury; Eng-Sin Tan, of Bootham, York; Paul Joseph, of East Lothian; John Harrison, of Atherton, Manchester; Graham Jack, of Bothwell, Scotland; Diamandis Konstandinidis, of Reading, Berks; Jonathan Herman, of Audenshaw, Manchester, and Isobel Kirk, of Glenrothes, Fife.

The answers were 1) A, GDI; 2) well, take your pick from a number of CD-ROM drives, printers, monitors, etc; 3) False.



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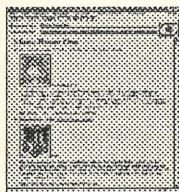
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# PCGAMES<sup>®</sup>

## Phew! What A Scorcher!

You'll need asbestos gloves to handle the latest issue of PC GAMES — it's hotter than... er... something very hot *indeed*. Why? Well, just take a look at this line-up...

### WARM!

#### Slam In The RAM!

We tell you how to turn your PC from a 1Mb dunce into an 8Mb super-brain. Don't be scared — it's easy!

### HOT!

#### Disk-tastic!

Two high-density disks, packed with excellence! Their contents are so Top Secret, that if we told you what was on them we'd have to kill you. Rest assured, however, they're pretty fab.

### HOTTER!

#### Previews A-Go-Go!

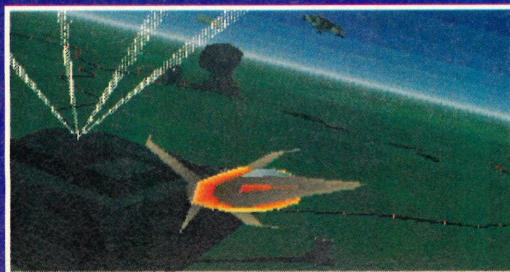
We take an in-depth look at a whole heap of forthcoming goodies, including:

- **NASCAR Racing** — The crash-'n'-smash sequel to IndyCar Racing!
- **Sim Tower** — Can Maxis out-sim its own SimCity 2000?
- **Wing Commander 3** — Origin goes movie mad *again*!
- **Colonization** — Sid 'Civilization' Meier returns!

### HOTTEST!

#### Inferno

Oh, almost forgot — we've got the first review of DID/Ocean's stunning space epic, despite what other, lesser mags might tell you!



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Top 100 games 1993; TFX,  
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On disk: Starlord, Ancients.

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486 PCs buyers' guide, Elite 2,  
Return to Zork reviewed. On disk  
Snapgrafx, Global Domination.

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Tomorrow's PCs; IndyCar  
Racing. HIGH DENSITY DISK:  
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PCs and music; Alone In The Dark  
2, Larry 6 reviewed. TWO HIGH  
DENSITY DISKS: Doom,  
Cakewalk.  
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Sound cards buyers' guide;  
Gabriel Knight, Doom, SimCity  
2000 reviewed. HIGH DENSITY  
DISK: Cardshop Plus.

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That's edutainment! Windows  
3.11; UFO, BloodNet, Lawn-  
mower Man reviewed. HIGH DEN-  
SITY DISK: SimCity 2000.

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VFX1 Virtual reality head-set.  
Ultima 8, Megarace, Microcosm  
reviewed. FREE CD-ROM with  
Star Trek, Battle Isle 2, Rebel  
Assault demos, latest version of  
Doom.

**Issue 32, June 1994**

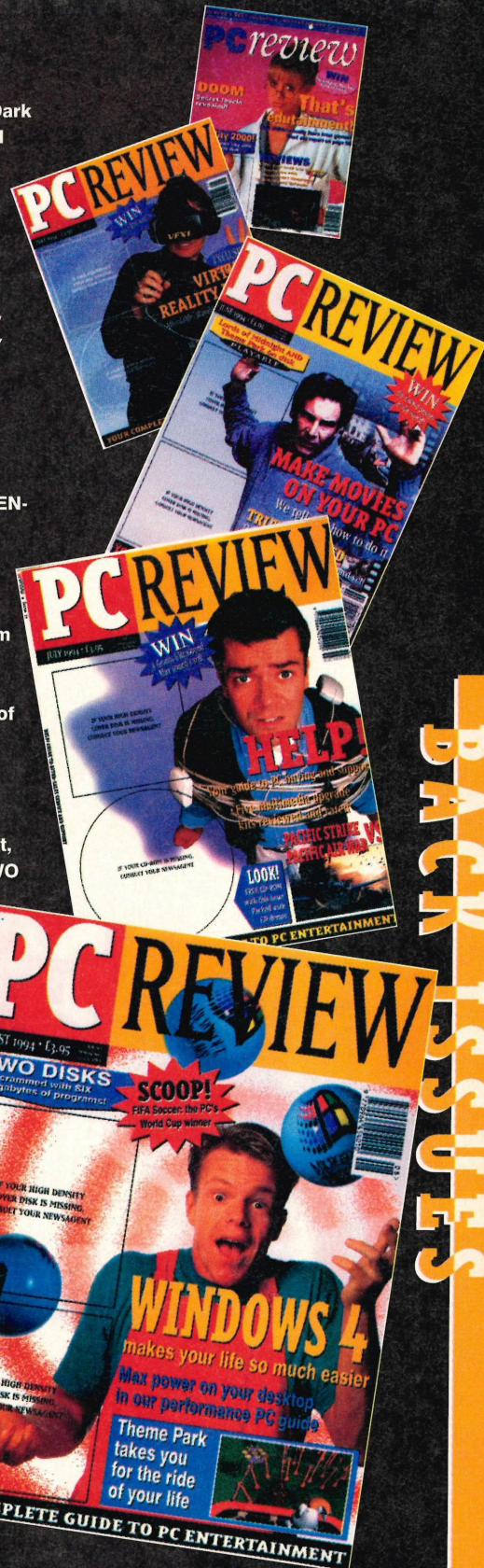
Making movies on the PC; Myst,  
Ravenloft, GNB II reviewed. TWO  
HIGH DENSITY DISKS:  
Theme Park, Lords of Mid-  
night.

**Issue 33, July 1994**

Guide to PC buying and  
after-sales support;  
Pacific Strike and Air  
War reviewed. PLUS  
FREE CD-ROM with  
Hand of Fate, Lands of  
Lore demos.

**Issue 34, August 1994**

Windows 4, first  
look. Theme Park,  
FIFA International  
Soccer, Origamo  
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TWO HIGH DEN-  
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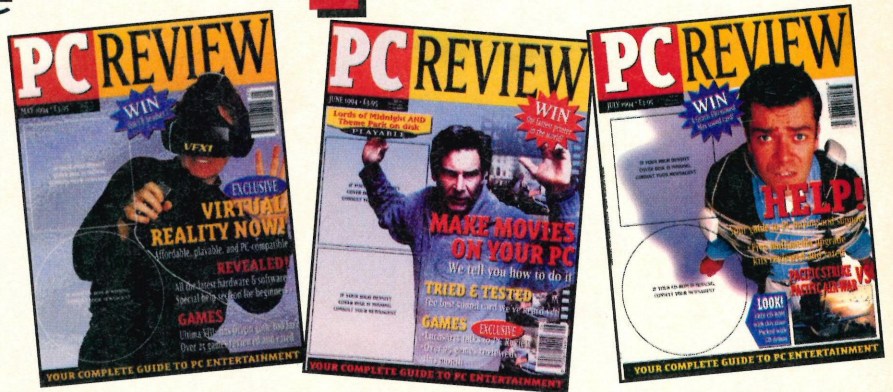
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# Next Month



## RIP — the death of computer games?

After years of being just good friends, Hollywood and the games industry are in serious danger of getting into bed with each other, with the big multi-national entertainment companies moving into the industry. So will you soon be playing Mel Gibson on your PC before you even see the tie-in movie at the cinema? And will Arnie's latest on the computer be anything like as satisfying as Doom? Find out in our special report next month.

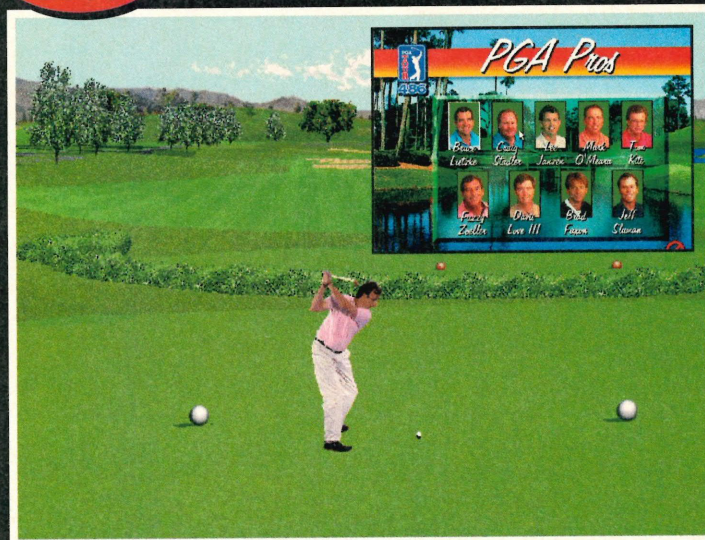
## Adventures in Kyrandia

Westwood Studios can do no wrong at the moment. With Lands of Lore 2, Legend of Kyrandia 3, and Command and Conquer (the follow-up to the Dune series) as well as the interactive versions of Disney's latest, The Lion King, on their books, the company is intent on pushing back the boundaries of gaming technology. PC Review visits Westwood's offices in Las Vegas to bring you this report.

## Sid Meier's back

Find out what games design guru Sid Meier thinks of his newest effort, Colonization, what makes Civilization so great even after two years, and what the man will be doing next. Sid talks to PC Review next month.

## PLUS



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## Games

There's a hot bunch of games lined up for the reviews section next month, among them PGA Tour Golf on CD, pictured here, Under a Killing Moon, 11th Hour (again!), Wing Armada, and Dreamweb. The big question is, of course, which of these will actually make it to the finishing line?

## AND

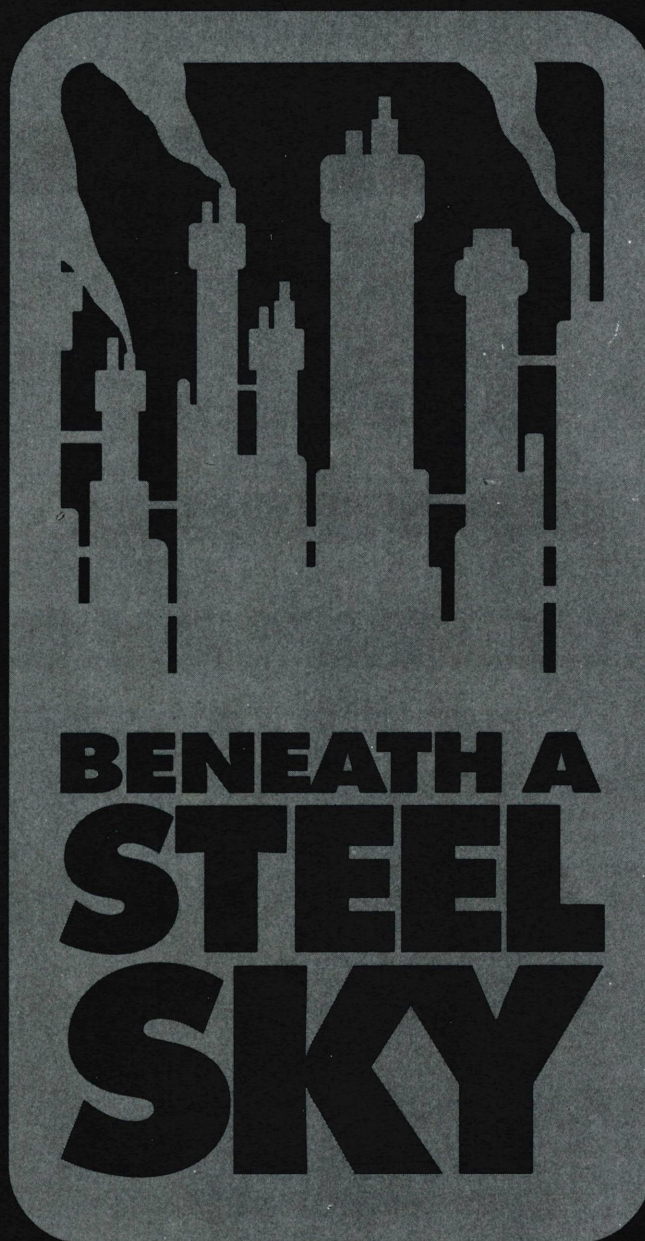
- Fight and flight — the pick of the latest flight sim controllers reviewed and rated.
- More hints and tips for the latest games
- Your questions answered by Q&A's Mike James

**PC Review October 1994. In the shops on September 15th.**

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### **FEATURES**

**Digitised comic book intro and background art generated by acclaimed artist Dave Gibbons.**

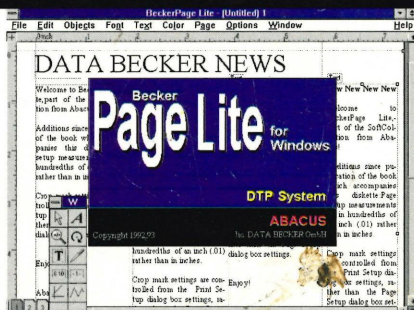
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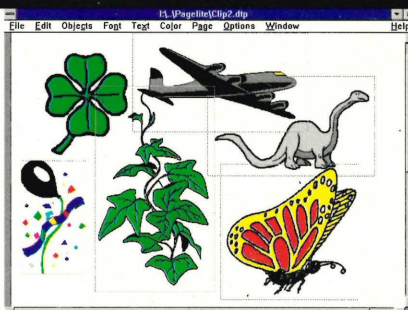
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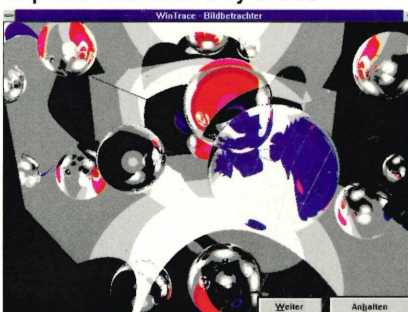
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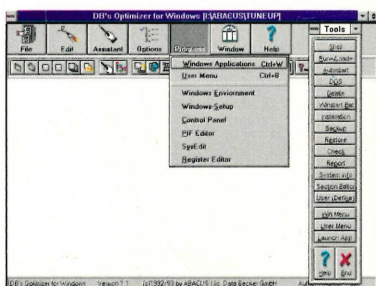
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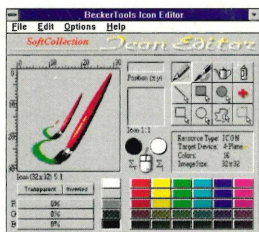
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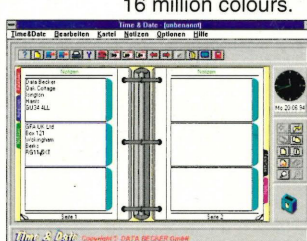
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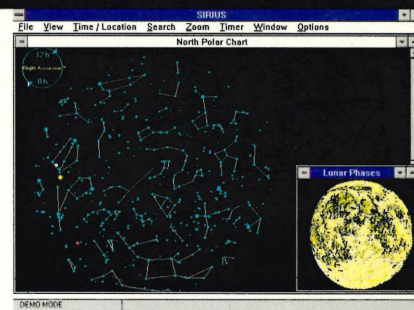
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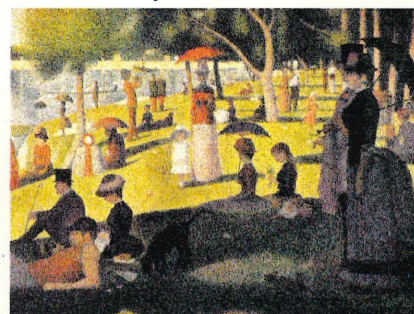
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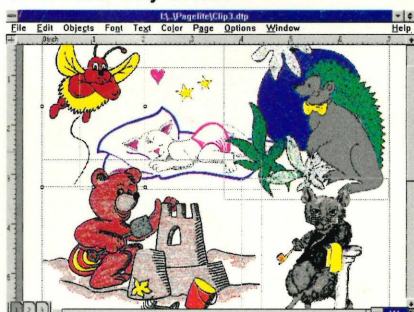
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